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KINESIC NONVERBAL BEHAVIORS AS INDICATORS OF READING ABILITY AND AFFECT IN GRADE TWO STUDENTS

by

Mary Dayton Sakari

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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Date Feb. 16, 1983

ABSTRACT

This study investigated the kinesic nonverbal behavior of grade two oral readers and the capability of teachers to judge reading ability and emotion from oral readers' kinesic nonverbal behavior. The oral readers were six grade two children selected for high, average and low reading ability. The teachers were four experienced primary teachers. These readers were videotaped in their classroom and the teachers commented upon and made reading ability ratings from the videotape after the sound track had been eliminated. The kinesic nonverbal behavior noted by the investigator and the comments made by the teachers were categorized. The investigator's categories included affective, linguistic and reading-related behaviors. The teachers' comment categories included movement, reading-related, affective and judgment behaviors.

Grade two oral readers exhibited aspects of their reading ability through messages about the immediate task of reading, their emotional state and the content and meaning of what they were reading via their kinesic nonverbal behavior cues. Specific kinesic nonverbal behaviors of grade two oral readers reflected the ability level of each reader and the affective state of each child. Experienced teachers interpreted and accurately judged levels of reading ability and emotional state from nonverbal behaviors alone.

The capability of oral readers to send kinesic messages

and of experienced teachers to receive those messages has implications for research and for classroom teachers. Further research into the possible developmental progression seen, the possible effects of self-concept, culture, physical attractiveness, or sex on kinesic behavior in the classroom is suggested. Through a conscious awareness of kinesic nonverbal behavior, teachers could become more effective instructors and interactants in their classrooms.

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Chapter I

INTRODUCTION

How many times has a teacher complained, "I know Johnny could do the work if he only wanted to"? How does she* know any such thing? Is this assertion an unfounded, judgmental bias or do such inferences come from experience, from an intuitive understanding of children in a learning situation?

Intuitive knowledge, according to Maddi (1980) tends to be inarticulate, emotional, vivid and immediate. It contains a compelling sense of the meaning of what is happening that stems from experience and from the exercise of mind and senses.

A teacher's intuitive knowledge stems from her background knowledge and from observation and interpretation of the child's immediate overt physical behavior. This overt behavior is nonverbal behavior. Nonverbal behavior, a major element of this study, is also known as nonverbal communication, nonverbal language, and the currently popular phrase, body language. A child's nonverbal behavior plays an important part in his teacher's intuitive and most probably unconscious assessment of his progress, emotions and communicative competence.

---

* As most teachers in the primary grades and all the teachers participating in this study were women, the pronoun she is used when referring to a teacher.

If a teacher were asked how she knows a child could do the work, she, like most people, could not articulate her knowledge but might include such comments as "he is beginning to read with expression", or "if he could only pay attention to what he is doing". She could not label the kinds of nonverbal communication she is receiving from that child, but she is constantly attending to and systematically interpreting that behavior. Teachers watch and assess a huge amount of information that is action-oriented, constantly occurring and communicated at very great speed.

Nonverbal communicative behavior can break through the culture- and time-oriented barriers imposed by a restricted and slower verbal communication. Under constant pressure to move right along through the classroom day, a teacher may not have time to stop and listen, but by unconsciously attending to a child's nonverbal behavior she finds time to take notice of and interpret his concerns.

In addition to being a part of intuitive knowledge, nonverbal communicative behavior plays an important part in what Hymes (1972) terms communicative competence. Successful communication consists not only of transmitting and decoding correctly the actual sounds, patterns, and meanings of the language spoken but as well includes transmitting and decoding correctly the nonverbal aspects of language. Nonverbal aspects such as tone, gesture, posture, and physical proximity underlie Hymes' concepts of speech situation and event, speech varieties and intents.

Consequently, as well as making assessments of a child's emotional state, a teacher uses a child's linguistic nonverbal communicative behavior to make assessments of his ability to understand and communicate both his own and others' meanings. An ability to competently use and interpret both verbal and nonverbal aspects of language is necessary for a child to communicate successfully and for his teacher to intuitively "know he could do the work if he only wanted to".

Problem

Although a teacher does use the verbal aspects of language to understand and assess children, she depends more on her intuitive understanding of nonverbal language. While many researchers (Knapp, 1972; Schrank, 1976; and others) agree that up to eighty percent of communication is nonverbal, Mehrabian's research (1968) claims that as much as 93 percent of our communication is expressed in nonverbal forms. Even so, nonverbal communication is less studied and less understood than the verbal portion of language. The problem then is that nonverbal behavior, the major means of communication, has not been researched in a major way which has resulted in a lack of awareness of its use.

Teachers need the answers to nonverbal communicative questions such as those following: What kinds of nonverbal cues are being sent by children to teachers in an oral reading situation? That is, can children communicate the author's meaning while they are reading orally and do children send messages about themselves while reading orally? Can teachers receive and interpret these nonverbal messages competently? What do teachers "see" when they look at a child reading orally? Can a teacher correctly assess a child's ability and emotional state through watching him read?

Purpose

This study is exploratory and is intended to describe and categorize some of the kinesic nonverbal behaviors displayed by children in grade two while reading orally, and to examine the ability of teachers to perceive reading ability and emotional state from readers' kinesic nonverbal behaviors.

Definitions

The following terms are defined to make explicit a frame of reference for this study.

Nonverbal communicative behavior is any behavior, excepting the spoken word, that communicates. Nonverbal communicative behavior can manifest either implicitly or explicitly and can contain affective or linguistic content used alone or in combination.

Implicit kinesic nonverbal behavior is any habitual behavior that is spontaneous, unintentional, and ambiguous, that often deals with interrelationships between people. Lack of eye contact indicating boredom is one example.

Explicit kinesic nonverbal behavior is any behavior in content messages that is deliberate, intentional and conscious, such as waving goodbye.

Affective kinesic nonverbal behavior is any nonverbal behavior that communicates current or long-term emotional state, self-concept, attitudes, values or beliefs. Stooped shoulders are an example.

Linguistic kinesic nonverbal behavior is any nonverbal behavior that communicates language-type messages through clarifying, expanding, replacing or contradicting those spoken messages. Behavior such as nodding the head accompanying the word yes is an example. Linguistic is used in the holistic sense of "... pertaining to language" (Funk and Wagnalls, 1980) and language is defined as "transmission of emotions or ideas between any living creatures by any means" (Funk and Wagnalls, 1980).

High ability reader is a child reading above grade level as determined by his or her classroom teacher. In this study a grade two student reading at grade three level or above is a high ability reader.

Average ability reader is a child reading at grade level as determined by his or her classroom teacher. In this study a grade two student reading at grade two level is an average ability reader.

Low ability reader is a child reading below grade level as determined by his or her classroom teacher. In this study a grade two student reading at grade one level or below is a low ability reader.

Teacher-categorizer comment classification is the organization developed from the data by four categories of student nonverbal communicative behavior as seen by the teacher-categorizers:

1. Movement behaviors are any teacher comments that did not go beyond describing the child's physical movement.
2. Reading-related behaviors are any comments on specific features or qualities of the reading act and on reading ability or skill, such as speed or book handling.
3. Affective behaviors are any comments relating to the emotions or feelings.
4. Judgment behaviors are any comments relating to character, disposition, personality development, potential or promise.

Investigator classification is the organization by five categories of student kinesic nonverbal communicative behavior. Categories 1, 2 and 3 were derived from research, while categories 4 and 5 were developed from the data received from students in this study. The five categories are:

1. Adaptor behaviors are habitual, noisy or random, implicit affective gestures triggered by stress, such as rubbing an eye or wringing of the hands.
2. Distress behaviors are explicit affective movements occurring in the upper half of the face that indicate discomfort or anxiety such as drawn brows or creased forehead.

3. Illustrator behaviors are explicit linguistic gestures used to enhance the verbal message they accompany, such as a posture shift with a shift of story character.

4. Simultaneous behaviors are implicit or explicit interaction behaviors occurring during oral reading, such as reading while turning a page or looking at the teacher.

5. Tracking behaviors are implicit or explicit specific reading skill behaviors occurring during oral reading, such as following the line being read with a finger.

These categories, both the four teacher-categorizer categories and the five investigator categories, are exclusive within each category but the behaviors seen occurred continuously and simultaneously.

Research Questions

1. What are the specific kinesic nonverbal behaviors of grade two oral readers?
2. What kinesic nonverbal behaviors of oral readers can experienced teachers articulate?
3. In what types of categories can oral readers' kinesic nonverbal behaviors be placed?
4. Is there a correspondence between the categories of teacher-categorizers' comments about children's nonverbal behavior during oral reading and the categories of children's kinesic nonverbal behaviors as identified

by the investigator?

5. Is there a relationship between the reading ability (high, average and low) of children and particular kinesic nonverbal behaviors?
6. Can experienced teachers assess reading ability of children through kinesic nonverbal behaviors seen while the children are reading orally?

Procedure

The investigation was carried out by observing and categorizing kinesic nonverbal behaviors of six grade two children of varying reading ability. A videotape recording of the readers reading aloud was produced. From an edited version (the details of editing are explained in Chapter III), the kinesic nonverbal behavior of these readers was described and categorized. Four experienced grade two teachers viewed without the sound the edited videotape of the readers and their comments and ability ratings for each reader were categorized. The data on kinesic nonverbal behavior were analyzed for commonalities and differences among readers between the investigator's category system and the teacher-categorizers' comments. Due to the descriptive nature of the study and the small sample of subjects no statistical analyses were attempted.

Significance

Very little research has investigated the use of nonverbal behavior by student or teacher during the learning process. This study is an initial attempt to describe and categorize kinesic nonverbal behaviors used by readers during oral reading and to investigate teachers' proficiency in judging reading ability and emotional state of readers. Such a study may indicate a difference in the kinesic nonverbal behavior of readers of varying abilities and the ability of classroom teachers to detect these differences. Teachers who could consciously and deliberately use this capability to detect students' reading ability and affective and linguistic differences and competencies would then have a better understanding of classroom interaction and a broader base for day-to-day instruction decisions.

Limitations

This study is limited in its generalization by the small number of subjects, both readers and teacher-categorizers. A small number of subjects was chosen because of the extensive amount and descriptive nature of the data. The study was also limited by use of a specific ethnic and social class group in that every social group's nonverbal communicative behavior can vary in transmission and meaning. Finally, this study is limited by the research procedure of an arbitrary separation (by means of soundless videotape recordings) of nonverbal communication from verbal communication as both together are necessary for complete communication.

Organization of the Study

Chapter I has introduced the problem, stated the purpose of the study, presented the research questions, explained the procedure, and stated the significance and the limitations of the study. Chapter II reviews the literature and research relevant to this inquiry. Chapter III details the experimental design of the study. Chapter IV reports descriptive results and provides an analysis of the data and a discussion of the results. Chapter V presents the research conclusions, further limitations, recommendations for study and instructional implications.

Chapter II

SURVEY OF RELATED LITERATURE

The survey of literature pertinent to this study is presented in four sections. The first section presents a selected background of anthropological and psychological research in nonverbal communication. The second relates research in anthropological and psychological kinesic nonverbal communicative behavior, while the third overviews educational nonverbal behavior research. The fourth section details educational kinesic nonverbal behavior research.

Anthropological and Psychological Research in Nonverbal Communication

While some educational investigators have pursued inquiries into nonverbal communication and behavior, for the most part the explorations in nonverbal research have been done by anthropological and psychological researchers concerned with cultural and individual phenomena. Their investigations have centered, first, around differentiating between universal, culture-specific and idiosyncratic behaviors and second, on categorizing these observed behaviors into organized systems.

Cultural and Physical Limitations

Nonverbal communication has been found to be limited in two ways: by cultural conventions and by the parameters of people's bodies. Culturally, there are specific ways people, including the children in classrooms, are allowed to move, dress and behave. Cultural rules even sanction what people are permitted to admit to seeing. Many researchers state that nonverbal behavior is meaningless outside the context of a specific culture (Knapp, 1971; Koneya and Barbour, 1976). Birdwhistle (1970, p. 81) says that "... as far as we know, there is no single facial expression, stance or body position which conveys the same meaning in all societies". Within any culture people can be placed as to occupation, social status and the ethnic group by observing their nonverbal language. We move in English, Japanese or Swahili.

While most nonverbal communication seems to be culture-specific some researchers maintain that there are nonverbal behaviors that are universal (Darwin, 1873; Ekman and Friesen, 1978; Fast, 1970; Galloway, 1971; Goleman, 1981; Obudho, 1979). These universal nonverbal behaviors are thought to be traces of earlier survival functions. An infant's smile may have such a survival function. It is also generally held that certain facial expressions of emotion are universal. Ekman and Friesen (1978) name expressions of fear, happiness, surprise, anger, sadness, disgust and interest as universal but also state that the rules for expression display can vary from culture to culture.

The human body parts, the way they move, where and how fast they move also limit and make idiosyncratic nonverbal communication (Ruesch, 1959).

Thus a person's physical body, senses, time, space, values, beliefs and attitudes are all involved in and limit his use of nonverbal communication. In the classroom also, each child's cultural background and physical attributes constantly dictate his nonverbal behavior.

Categorization of Nonverbal Behavior

The totality of nonverbal communicative behaviors is schematized in a variety of systems, but these classifications generally follow one of two major orientations -- 1) modality or 2) process.

Classification systems based on modality are employed by many nonverbal researchers utilizing anywhere from six to eighteen major divisions. Modality categorization schemes are based on groupings of like elements such as the specific locus of a movement (mouth, hand, whole body), specifics of environment (architecture, artifacts, color), or other specific groupings (space, time, sound). For instance, Knapp's (1978) modality oriented listing includes 1) environmental factors, 2) proxemics, 3) kinesics, 4) touching behavior, 5) physical characteristics, 6) paralanguage, and 7) artifacts, as categories. This type of classification scheme compartmentalizes and stratifies behavior. A modality classification scheme is not the primary type of categorizing used in this study.

The other major type of classification employed by researchers is process-oriented and is the type best fitted to the present study. A process-oriented category system, being more holistic than a modality system, groups together

all nonverbal behaviors that are directed toward or related to an outcome. In a process-oriented category system though, modality groupings will frequently be evident as subcategories. Cook (1971) uses two process divisions:
1) static - nonverbal cues which do not change, and
2) dynamic - nonverbal cues which do change. Harrison and Crouch (1975) divide nonverbal cues into 1) messages of relationship, and 2) messages of content.

The category system developed for this study is based on process rather than modality. Specific isolated information of movements of hand, face or body was not of paramount importance but rather how these specific movements combine with and reflect the act of reading orally. The process categories used in this study included combinations of kinesic nonverbal behaviors that revealed clues to the reader's emotional state, clues to his ability to transmit story meaning, and clues that related directly to the act of reading a book orally.

In addition to the modality and process classifying of all nonverbal behavior, some researchers have also developed quite complex category systems dealing with separate subelements of nonverbal behavior. Examples of such systems are the posture communication system produced by Scheflen (1964, 1968), the system of interpersonal spatial relationships developed by Hall (1966) and the system that the present study follows in part - the nonverbal affective and linguistic communication category system for kinesic gestures originated by Ekman and Friesen (1969, 1978). This study then examines oral readers' kinesic nonverbal behavior and the capability of teachers to judge a child's oral reading ability by observing his nonverbal kinesic behavior using a process rather than a modality orientation.

Kinesic Nonverbal Behavior

Kinesics or body movement, is an important and much studied aspect of nonverbal communicative behavior. Kinesic behavior has been differentiated into whole body movement, partial body movement, facial movement and eye movement. These movements can be used singly or in combination. The movements are sub-categorized into 1) posture and position which are whole body movements, 2) gestures which are partial body movements, 3) facial expressions, and 4) gaze or eye movements (Lamb, 1965). Postures can last from several seconds to minutes to a lifetime. Gestures, facial expressions and eye movements tend to be of second or micro-second duration (Leathers, 1978). While all aspects of kinesics are important when observing the nonverbal behaviors of oral readers, this study has been limited to examining gestures and facial expressions of children in an oral reading setting. Posture and eye movement were both excluded from the study as they were not as pertinent or as available for observation as gesture and facial expression. Observation of posture must be made over a longer time span than was available in this study and as the readers were sitting at a desk and as only the upper portion of the body was videotaped, accurate observation of posture, a whole body movement, was not possible. As well, accurate observation of eye movement was not possible owing to the readers' eyes being downcast while they read.

Kinesic Gesture and Facial Expression Units

There is an inordinate amount of information available to researchers through gestures and facial expression alone. The body has available for gesture as many as 700,000 distinct signals (Ruesch and Kees, 1959), but North American culture makes use of only about 26 common gestures (Scheflen, 1964). Our faces alone are capable of 20,000 expressions, although in our culture we limit ourselves to between 30 and 35 facial expressions (Birdwhistle, 1970). By using gestures and facial expressions two people in conversation can exchange 200 to 5000 bits of nonverbal information per second (Schrank, 1975). Mehrabian and Ferris (1967) state that for communication receivers facial expressions receive about three and a half times more attention than vocal expressions do. Mehrabian (1968) states that of the total communication 55 percent is facial, 38 percent paralanguage (vocal) and 7 percent verbal. In other words 93 percent of any communication is nonverbal and only 7 percent verbal.

This study, limited to specific aspects of kinesic behavior and limited by time constraints, does not account for all the kinesic behavior that was produced by the oral readers. However, twenty-four separate kinds of movements were observed and recorded.

Kinesic Behavior

As well as seeking knowledge of kinesic behavior through its universal, culture-specific or idiosyncratic nature, researchers have found that the meaning of nonverbal messages can be classified by intent. First any body movement can express either affective or linguistic content (Argyle, 1975; Ekman and Friesen, 1969; Galloway, 1970, 1976, 1977; Knapp, 1978; Leathers, 1978). Galloway (1977) says that kinesic communication takes place on two levels: 1) learned cultural procedures - which would include linguistic content, and 2) one's innate underlying humanness - affective or emotional content. Both these types of kinesic behaviors are of concern in this study.

Determining and categorizing affective behaviors will help distinguish emotional messages readers are sending and categorizing linguistic behaviors will help distinguish how capable the readers are of communicating the author's message. Secondly, commonly understood cues specific to a culture and cues that indicate the sender's personal feelings, attitudes or values can at the same time be what Wierner and Mehrabian (1968) term implicit and explicit messages. Implicit cues are spontaneous, often unintentional and ambiguous, habitual behaviors that often deal with interrelationships between people. Explicit cues are deliberate, often intentional and conscious behaviors in content messages. Both implicit and explicit messages can contain affective and/or linguistic information. There is little agreement among researchers on a congruent and complete definition for the terms implicit and explicit as used in nonverbal research. Some definitions imply the message is implicit or explicit from the sender's point of view, others from the receiver's. In this study the message is seen as implicit or explicit from the point of view of the receiver of the message.

Ekman and Friesen (1969, 1978) classify kinesic behaviors into five categories that combine the affective and linguistic aspects with the implicit and explicit. Ekman and Friesen name two emotional categories - affective displays and adaptors, and three linguistic categories - emblems, illustrators and regulators. Affective displays are kinesic nonverbal behaviors that through the "... movements of the facial muscles" (Ekman and Friesen, 1969, p. 70) exhibit primary affects such as happiness, surprise, fear, sadness, anger, disgust and interest. Adaptors are kinesic nonverbal behaviors that "... were first learned as a part of a total adaptive pattern where the goal of the activity was obvious" (Ekman and Friesen, 1969, p. 85) and, when later emitted, are "... habitual, not intended to transmit a message, and usually done ..." without awareness (Ekman and Friesen, 1969, p. 85). Emblems are kinesic nonverbal behaviors that "... have a direct verbal translation, or dictionary definition, usually consisting of a word or two, or perhaps a phrase" (Ekman and Friesen, 1969, p. 63). Illustrators are kinesic nonverbal behaviors that are "... directly tied to speech, serving to illustrate what is being said verbally" (Ekman and Friesen, 1969, p. 68). Regulators are kinesic nonverbal behaviors that "... maintain and regulate the back-and-forth nature of speaking and listening between two or more interactants" (Ekman and Friesen, 1969, p. 82).

As well as being affective or linguistic, each category also serves an implicit or explicit function (see Table 1).

Table 1

Aspects of Ekman and Friesen's Kinesic Behavior Categories

Cue Functions:	Behavior Categories:	
	Linguistic	Affective
Implicit	Regulators	Adaptors
Explicit	Emblems Illustrators	Affect Displays

Ekman and Friesen's system is the basis from which the three part classification system for this study was developed. The three parts are kinesic affective behavior, kinesic linguistic behavior and kinesic reading-related behavior.

Kinesic affective behavior. One of the first types of nonverbal behavior available for display by the readers in this study is affect-oriented behavior. The affective or emotional aspects displayed through kinesic behaviors include personal attributes, such as intellectual or other abilities, beliefs and values, temperament and traits, and past history, that can be communicated nonverbally (Argyle, 1975). Some of these abilities and attitudes can have stable characteristics that are not directly aimed at affecting another person but are part of a constant stream of signals about the sender's inner state. Other affective cues can be manipulated so that the information sent shows how the sender perceives himself at that moment and how he wants others to perceive him (Argyle, 1975; Ekman, 1971; Ekman and Friesen, 1969, 1978; Leathers, 1978). Readers have the potential to send both kinds of affect cues, cues about general emotional state and cues dealing with the reader's feelings about the performance of the immediate task.

Stable and manipulable emotions are recognized from whole patterns of nonverbal cues being sent and these cues are "... usually consistent with each other, and also with the expectations created by the context ..." (Argyle, 1975, p. 114). Gestures tend to be indicators of the intensity rather than the type of emotion conveyed while the face portrays types as well as intensity of emotion (Ekman and Friesen, 1967, 1978; Ekman, Friesen and Arcoli, 1980; Leathers, 1978). The face seems to be the most important area of the body for signalling emotions, involuntary or manipulated, fleeting or static (Argyle, 1975; Goffman, 1967).

Two affect categories (Table 1) are used in this study, one reflecting emotion through gestures (adaptors) drawn from Ekman and Friesen (1969) and one through facial expression (distress), an affect display used by Leventhal and Sharp (1965).

Kinesic linguistic behavior. A second type of nonverbal behavior available for display by readers is linguistic-oriented behavior. Linguistic kinesic behaviors can clarify, expand, replace, regulate or contradict verbal communication (Knapp, 1972; Koneya and Barbour, 1976).

Researchers say that all nonverbal communication is both learned and developmental and a more primitive, basic way of conveying messages than speech (Argyle, 1975; Birdwhistle, 1970). Young children communicate to others and form a picture of themselves from the nonverbal communication they receive long before they speak, and consequently nonverbal language is the structure for all communication (Harrison and Crouch, 1975). Although nonverbal language is used by very young children to satisfy their needs before they have a command of words, it is not replaced by verbal language. Nonverbal communication evolves and becomes richer and more complex throughout a person's life just as does verbal communication (Argyle, 1973; Bateson, 1968; Benson and Frandsen, 1976; Birdwhistle, 1970).

Language is a conventional system of symbols used to communicate, a system used to share our consciousness with other humans. Researchers interested in nonverbal communication view language as a system of patterned and determined plurimodal behaviors composed of both verbal and nonverbal elements (Benson and Frandsen, 1976; Knapp, 1972; Koneya and Barbour, 1976; von Roffer-Engle and Hoffer, 1977; Werner, Dovoe, Rubinow and Geller, 1972; Wiemann and Wiemann, 1975). Wiemann and Wiemann (1975, p. 2) describe language as all the "... potential communicative behavior that a person emits simultaneously as one message being sent in a number of different channels equals the message". The nonverbal language system corresponds to the verbal system in that it has surface and deep structure, forms for revealing meaning (semantics), patterns of organization (syntax), and discrete standard units that within themselves may be meaningless but collectively can display meaning (phonemics) (Argyle, 1973; Bateson, 1968; Bensen and Frandsen, 1976; Birdwhistle, 1970; Galloway, 1977). As Ren Chao (1970, p. 116) says, "... gestures are as conventional as words are ..."

Everyone uses the nonverbal as well as the verbal part of language to communicate. It is impossible not to communicate through both modes. Sound, speech, artifacts, movement, time, space, even silence and inactivity have meaning. Verbal communication without its counterpart, nonverbal communication, would be extremely limiting. Together they reinforce and clarify. The uniqueness of the nonverbal aspect of language is that it provides us with sources of information not available from, nor often, appropriate to the verbal portion of language (Bateson, 1968; Galloway, 1976).

In this study only one of Ekman and Friesen's (1969) three linguistic categories was used. The categories emblems and regulators were not appropriate to the study. Regulators were not present as the children were not in conversation with anyone during the oral reading, nor were any of the explicit emblem gestures used by the children in this setting. The illustrators category which identifies the readers' gestural interpretations of the story content and meaning was used by the students (see Table 1).

Kinesic reading-related behavior. The affect and linguistic categories used in this study were easily adapted from current systems used in research (Ekman and Friesen, 1969; Leventhal and Sharp, 1965), but these two classifications do not account for all the kinesic behavior available for observation in this study. A third classification of kinesic nonverbal behavior relates to manipulation and reading a book orally and to the interaction between reader and listener. A classification needed to account for reading-related nonverbal behaviors can at best be tenuously related to Ekman and Friesen's regulator category (see Table 1). The regulator category describes the behaviors involved in regulating conversational flow and the interrelationship during a conversation. In this study the story (conversation) content sent by a reader is the author's. The interrelationship between oral reader and teacher-listener is centered on performance of the reading task rather than on responding to meaning. While an interrelationship between two people is involved (the oral reader and the teacher-listener), these interactants are not in conversation. Consequently a new classification needed to be developed to fit this particular situation. Two reading-related behaviors categories were devised, a simultaneous category reflecting interaction behaviors between oral reader and teacher-listener, and a tracking category reflecting reading skill behaviors such as book handling, speed, hesitations, vocalizations and use of fingers.

The kinesic affect, linguistic and reading-related behavior categories used in this study intermesh to reflect both the implicit and explicit cue functions as well as content through the linguistic and affect aspects of nonverbal communicative behavior seen during oral reading (see Table 2).

Table 2

Aspects of Kinesic Categories Used or Developed by Investigator

Cue Functions:	Behavior Categories:		
	Linguistic	Affect	Reading-related
Implicit		Adaptors	Simultaneous
Explicit	Illustrators	Distress	Tracking

Educational Nonverbal Research

The research reviewed thus far has originated in psychology and anthropology. However, there are educational researchers who have recognized the importance of nonverbal communication. Galloway (1968, 1970, 1974, 1977) has been a leader in advocating an awareness of nonverbal communication in the classroom. A number of other investigators have tried to apply psychological and anthropological findings in nonverbal communication to education (Knapp, 1971; Koch, 1971, 1975; Mehrabian, 1972; Wiemann and Wiemann, 1975). Additional researchers have emphasized various nonverbal techniques via teacher training (Amidon, 1971; French, 1971; Hodge, 1974; Howard, 1975; Johnson and Pancrazio, 1973; Knapp, 1971; Koch, 1971; Ligons, 1973; Love and Roderick, 1971; Shapiro, 1977; Wiemann and Wiemann, 1975).

The quantity of nonverbal research findings generated in an actual classroom setting is rather limited. Most of this research has been concerned with specifics of classroom environment, with the portioning of social and personal space and the effects of both these on teachers and students. Other research has dealt more directly with the area of interest of the study, kinesics. However, the emphasis has been on teacher kinesic behavior rather than the pupil kinesic behavior of concern in this study.

Educational Kinesic Nonverbal Research

Even though the kinesic nonverbal component of classroom communication has been found to be more important than the verbal component (Keith et al., 1974), in one study Davis (1974) found that most grade one teachers were unaware of their nonverbal influence on their students. Other research concerning teachers' use of or accuracy in their ability to decode students' kinesic nonverbal behavior indicated that as well, teachers paid scant conscious attention to children's efforts to communicate their feelings (Ostler and Kranz, 1976; Jerker et al., 1964). Nonverbal messages were sent and received but teachers' conscious awareness and deliberate use of decoding and encoding nonverbal communication was apparently lacking.

The emphasis then, in educational kinesic research has been on teacher kinesic nonverbal messages and on teachers' lack of conscious awareness of their own and their students' nonverbal kinesic behavior.

Curriculum, Instruction and Kinesic Nonverbal Behavior

A limited amount of research on the possible interrelationship of teacher and pupil nonverbal behavior with curriculum or the instructional process is available. Dobson, Hopkins and Elsom (1973) and Hopkins (1974) found that the individual classroom teacher's philosophy about human nature affected their classroom nonverbal behavior. The nonverbal behavior of teachers with a more positive view of human nature encouraged student involvement in the classroom while the nonverbal behavior of those who held a more negative view tended to discourage student involvement and interaction. French (1970) indicated the need for teacher awareness of pupil nonverbal communication during instruction and subdivided pupil nonverbal behavior into five categories for possible use by teachers. These categories included a student's nonverbal expression of 1) need, 2) anxiety, 3) boredom, 4) involvement, 5) verbal substitutions.

Reading and Kinesic Nonverbal Behavior

Less research yet has been done interrelating kinesic nonverbal communication and the specific task of reading. In other areas of nonverbal behavior, Pratt (1970) found no significant relationship between type of teacher touch-behavior and reading achievement scores in grade one and two classrooms. As well Melnik and Larson (1976) demonstrated the efficacy of a nonverbal approach to assessing reading comprehension through pictures and pantomime rather than paper and pencil or verbal response means of scoring. Allen and Plazewski (1979) concluded that student comprehension during a reading lesson was more accurately revealed in a nonverbal condition than in a verbal or verbal-nonverbal condition.

Regarding the affect area of nonverbal communication in relation to reading, Natchez (1959) found that there was a high degree of relationship between personality pattern reaction scores secured in a non-reading and in a reading situation and that children who had difficulty with reading often experienced considerable distress during the reading situation. This distress evoked frustration reactions such as excessive dependence, aggression and withdrawal.

No research could be found in connection with kinesic nonverbal behavior reflections of a child's reading skill or ability level, nor reflecting a child's inner state or feelings about his reading or the reading situation, except the study by Natchez. Nor was any research found concerning a teacher's capability of assessing students' reading ability or emotional state during oral reading through kinesic nonverbal behaviors. This study is a first attempt in that direction.

Summary

From a review of the literature key points are summarized here. Nonverbal behavior is limited by culture conventions and the physical limitations of the human body. Nonverbal behavior can be specific to an individual or a culture, but some emotional facial expressions are thought to be universal to all humankind.

The totality of or separate elements (posture, space, kinesics) of nonverbal behavior can be classified in various ways within a modality (specific behavior) or process (grouped behavior) orientation. A classification system of importance to this study is Ekman and Friesen's system for kinesic gestures. Their system includes categories for implicit and explicit linguistic and affective cues. The five category system developed for this study consisting of distress, adaptor, illustrator, simultaneous and tracking behaviors was derived from Ekman and Friesen's and Sharp and Leventhal's research and from observations by the researcher.

Educational nonverbal behavior research has centered on classroom environment, the portioning of social and personal space and teacher kinesic behavior. Research in teacher kinesic behavior has been concerned with positive and negative effects on students by teacher nonverbal behavior and with teachers' lack of conscious awareness of their own and their students' nonverbal communication.

Nonverbal research concerned with curriculum and instruction correlated a positive view of human nature and positive teacher nonverbal behavior with an increased amount of interaction in the classroom, and has indicated a need for teacher awareness of pupil nonverbal communication during instruction.

Nonverbal research concerned with reading instruction has indicated that teacher-touch has no effect on student reading scores, that student reading comprehension can be better assessed through nonverbal means, and that personality patterns correlate in reading and non-reading situations.

Chapter III

DESIGN OF THE STUDY

In this chapter the sample, instruments, procedure, development of classification systems, appearance ranking, and analysis of the data are described. The purpose of this study was to catalogue and classify the kinesic nonverbal behavior of six grade two children during oral reading and to determine if four experienced teachers could detect and describe children's reading ability and emotional state through viewing oral reading nonverbal behavior. To accomplish these intents a videotape was made of six grade two children of varying reading abilities. Nonverbal data was compiled from viewing the videotape without the accompanying sound. Two sets of nonverbal behavior classifications were developed from viewing the tape: 1) five categories defined by the investigator, and 2) four categories evolving from comments made by four experienced grade two teachers.

The readers' nonverbal behavior was analyzed by the investigator for differences and commonalities among readers, and for differences and commonalities within reading ability levels according to a classification system that was developed as the first part of the study. The teacher-categorizers' comments concerning emotional state and reading skill were compared to the investigator's categorization of readers' behavior. Teacher-categorizers' judgments about reading ability were compared to the classroom teacher's reading ability placement of those students. As a check on the teacher-categorizers' ability judgment an appearance ranking test was devised. Finally the two classification systems developed (teacher-categorizers' and investigator's) were compared for similarities and differences.

Sample

Readers

The six readers, all from the same grade two classroom, were from an urban school division in central Alberta. Middle-class readers were chosen for their similar socio-economic status to the teacher-categorizers to minimize race or class stereotyping. Research has shown that more accurate and reliable decoding of communication is achieved when subject and observer are of the same socio-economic group (Byers and Byers, 1972; Hunt et al., 1978).

Teacher-categorizers

The four teacher-categorizers were volunteer, experienced classroom teachers currently teaching grade two and all having taught for at least the last three years. Three were from a large metropolitan school division, one was from an outlying suburban area. None were from the school division from which the readers were selected, nor did any of the teacher-categorizers know any of the readers they viewed.

Instruments

As nonverbal behavior is transitory and ongoing, a videotape recorder was used to produce a more permanent record of the readers' nonverbal behavior (Argyle, 1975; Bailey, 1979; Worth, 1974). The readers' classroom was visited four times before the children's nonverbal reading behavior was recorded to allow the children to adjust to the investigator, and to being videotape recorded. The first visit was used to introduce the investigator to the children. On a second visit the video equipment was presented and its functioning was explained and demonstrated. This demonstration included video recording of action taking place in the classroom and showing that recording to the children. On the third visit two plays performed by the class were recorded by video. During the fourth visit the video recording of these plays was viewed by the children. During the fifth and sixth visits all the children in the class, except two whose parents objected, were recorded reading a previously read story from their current basal reader. In this way the readings were familiar, practiced, and as estimated by the investigator at each child's independent reading level as described by Betts (1946). A final visit was undertaken to allow the children to see themselves reading.

When recording the readers, each child was videotaped against the same neutral and static background using black and white film which has been found to be less emotionally distracting to viewers than color film (Reich and Meisner, 1976). As well, to simulate a more natural and relaxed situation the video recording was done in the readers' classroom with their teacher and classmates present. All taping was done during two consecutive mornings.

Procedure

Videotaping of Readers

Each reader sat at a tilt-top desk approximately one and a half meters away from and directly in front of the video camera and the investigator. This distance is within what Hall (1968, p. 115) calls a nonverbally "... acceptable social distance". As a tripod mounted video camera would have produced a downward focused view of the reader, the camera was remounted on a dolly cart that allowed it to be lowered to the reader's eye-level. This change ensured a direct front facial view of the reader so gestures were more observable. The specially constructed dolly cart also allowed for the same view stability of a tripod not permitted by a hand-held camera.

The children were instructed to sit squarely at the desk, to start reading at the beginning of the story, to read out loud until the investigator asked them to stop, and if they made a mistake or missed a word they were told not to worry about it but to continue reading. Each student was videotape recorded reading orally for a timed three minute segment. Grade two children are very seldom called on to read orally for as much as three minutes so it was felt that asking them to read longer than three minutes might put them under an unnecessary strain.

Classifying of Reading Ability of Readers by their Homeroom Teacher

After the entire class was videotape recorded the classroom teacher was asked to classify all the children as to a grade two reading ability level - high, average or low. To ensure that the classroom teacher's judgment would not be affected, the six readers to be included in the study were not selected until after her classification by reading ability level. The classroom teacher's classification was compared with the results of the standardized reading test given later in the year (see Chapter IV, Table 10).

Selection and Editing of Videotape

The six readers were chosen by separating the high, average and low ability readers into groups and separating each ability group into sex groups. One reader from each sex for each ability group was then randomly chosen for a total of six readers. A boy and a girl high ability reader, a boy and a girl average ability reader, and a boy and a girl low ability reader were chosen (see Table 3). The edited videotape included two sample readers, followed by a randomly ordered six readers. The order of the six readers was changed for each of four copies of the edited tape to enable each teacher-categorizer to view the readers in a different sequence.

Table 3

Sample of Oral Readers by Sex and Ability

Sex	Ability		
	high	average	low
male	one child *(509)	one child (102)	one child (318)
female	one child (213)	one child (403)	one child (606)

*(000) = student identification number

The videotapes for each of the six children randomly selected were identified and a ninety second segment was taken from the middle to end of each reader's three minute section of the tape and visually time-dubbed to facilitate a written, timed record of the nonverbal behaviors seen. As up to five thousand nonverbal cues are sent and received per second (Schrank, 1975), a ninety second segment of tape for each reader seemed adequate for identifying reading ability and emotional state. A middle to end portion of the three minute section was chosen in the hope that the reader would have become more relaxed and less conscious of the video equipment as the taping progressed; when viewing the videotape this seemed to have been justified.

To check on the videotape's acceptability to the teacher-categorizers and to refine the investigator's instructions and questioning techniques, the tape was viewed separately by two graduate students in reading education. Their comments were solicited as to changes or improvements that could be made. Incorporated into the procedure was their suggestion to allow the first of the two viewings of each reader to be done without comment. In other words, the first viewing was to be done silently with comments or discussion after the viewing and the second viewing was to be done with a running commentary by the teacher-categorizer. This procedure seemed to allow for better concentration and attention on each reader.

Videotape Viewing by Teacher-categorizers

The video portion without the audio portion of the edited tape was seen independently by each of the four teacher-categorizers. One reader was seen, observations were discussed with the investigator, re-viewed, and discussed again before going on to the next reader. This viewing and discussing began with the two sample readers so that the teacher-categorizers were accustomed to the procedure before viewing the six selected readers. Each teacher-categorizer was asked to watch the tape and comment on what she saw, felt or thought, to share any impressions at all about the child, his reading ability or skills, and emotional state. At the end of viewing and discussing each reader, the teacher-categorizer was asked to classify the child's reading level as high, average or low for grade two according to the same definitions for reading level used by the classroom teacher. All teacher-categorizer comments were recorded on audio tape. The videotape of oral readers and the teacher-categorizers' comments on audiotape could not be conveniently included in this account of the study but are available from the investigator.

Commenting and Ability Rating by Teacher-categorizers

Teacher responses were transcribed and catalogued by the investigator. Classification of comment categories were not predesigned but were developed from the teacher comments (see Chapter IV). The four comment categories that developed were movement, reading behaviors, affect and judgment. An interrater reliability score of 95 percent was determined according to the Arrington Reliability formula (Feifel and Lorge, 1950):

$$\frac{2 \text{ x total agreements}}{2 \text{ x (total agreements and disagreements)}}:$$

This degree of interrater reliability was considered as acceptable for this study by the investigator.

Categorizing of Kinesic Nonverbal Behavior by the Investigator

The investigator categories were developed with the inestimable help of Dr. D. Kuiken, Department of Psychology, University of Alberta, who provided guidance toward the pertinent literature and spent considerable time in viewing the reader videotape and in discussion. With his help a system was devised in which each reader's kinesic nonverbal behavior as seen on the edited tape was tabulated on a time-coded record sheet for each of the five categories used by the investigator (see Appendix B). The five nonverbal behavior categories used as set out in Table 2, were adaptors, distress, illustrators, simultaneous and tracking behaviors. The observations were time-coded to minute and second. This was facilitated by a visual time code on the edited tape and video editing equipment that allowed the tape to be stopped instantly and rerun backwards or forwards at one-fifth, one-half, normal, or twice the normal tape speed.

Observer Categories

To check on the reliability of the categories and on the investigator's categorization of the nonverbal behaviors seen, the edited tape was viewed by five trained observer-categorizers, all graduate education students, one graduate student for each of the five nonverbal behavior categories. Their training included discussion of the definition and description of nonverbal behavior in the category, and the viewing of a training tape made up of four samples of the nonverbal behavior category alternating with four samples other than the nonverbal behavior category. When the observer-categorizer felt confident and could select from a second sequence of examples and non-examples the four instances correct for the category they were considered trained. The observer-categorizers then viewed the two sample readers from the edited tape and discussed their observations with the investigator before going on to the six readers whose behavior was to be categorized. The observers were allowed to view each of the readers as often as they felt necessary. All responses were recorded for time and content. The interrater reliability following the Arrington Reliability formula (Feifel and Lorge, 1950) between the investigator and the observer-categorizer common observations varied from 53 percent for reading-related behaviors, 59 percent for distress, 62 percent for simultaneous behaviors, 69 percent for adaptors, to 71 percent for illustrators. Only the observations agreed upon in common by investigator and observer-categorizers were used in analyzing the data.

Checking of Ability Ranking of Teacher-categorizers by Appearance Ranking

A concern that emerged for the investigator during the study was that in certain instances the readers' physical appearance may have affected the teacher-categorizers' judgments. To test for this possibility, a still picture produced from the video tape was taken of each reader. The still pictures were made up as 13 cm by 18 cm black and white prints on a black poster board background. Whenever possible the still was taken when the reader was looking directly at the camera. Three graduate education students were asked to rank each reader independently for appearance. A scale of one for minimum attractiveness to seven for maximum attractiveness was used. These appearance rankings were compared to the teacher-categorizers' judgments of reading ability level for each reader (see Chapter IV).

Analysis of Data

No statistical analysis of data was possible or desirable owing to the small size of the sample and the exploratory nature of the study. The descriptive analysis involved viewing the nonverbal behaviors seen to develop a classification system to organize the data (see Chapter IV). The behavior seen was categorized, tabulated and compared among readers and within reading ability levels. The same procedures were followed for the data obtained from the teacher-categorizers. A classification system was developed, their comments were categorized and tabulated and comparisons were made between teacher-categorizer comments and the investigator's categories. The teacher-categorizer ability classifications were compared to the classroom teacher's ability classifications, the standardized reading test scores, and to the appearance ranking test.

Summary

Grade two children were videotaped while reading orally. Nonverbal behavior seen on the videotape was categorized, tabulated and compared for six readers of high, average and low reading ability. Categorization, tabulation and comparison were also done for nonverbal behavior comments and reading ability judgments made by teacher-categorizers. Because of the exploratory nature of the study and small sample, analysis of the data was descriptive rather than statistical.

Chapter IV

FINDINGS OF THE STUDY

This chapter contains a descriptive analysis of findings of the study presented through answers to its research questions. To supplement the answers to the individual research questions the kinesic nonverbal behaviors of two readers from the study are profiled through a verbal description of his or her observed behavior. These profiles include a summary of all comments made by the teacher-categorizers and a time-coded record of the investigator observation by category.

The answer to question one focuses on the kinds of kinesic nonverbal behaviors seen, while the answer to question two reports the ability of experienced teachers to distinguish and articulate kinesic nonverbal behaviors. Question three's answer is a discussion of the two classification systems developed to accommodate these kinesic nonverbal behaviors. The answer to question four focuses on the correspondence between teacher comments and investigator's observations. The differences in kinesic nonverbal behavior of grade two oral readers is reported as an answer to question five, and the teacher-categorizers' perception of oral readers' levels of ability as seen through the oral readers' kinesic nonverbal behavior is spoken to in question six. A summary of the findings concludes this chapter.

Reader Profiles

Perhaps the information in this study might best be brought into focus through profiles of two of the children involved, a high ability reader and a low ability reader. This account contains a verbal description of each reader's appearance and behavior as observed by the investigator. These descriptions will then be compared to the primary data of the study provided through a summary of all the comments garnered from the teacher-categorizers about each reader and to the time-coded record of the investigator's and interrater's common observations of the readers' nonverbal behavior (see Tables 4, 5, 6 and 7). For teacher-categorizer comment summaries and the investigator time-coded observation records for each of the remaining four readers see Appendices A and B.

High Ability Reader

Reader 213 was classified as a high ability reader and did appear to the investigator to be the best reader in the group of six children in this study. She also seemed to be one of the better readers in her class of twenty-two children. While no older than the other children in her class she looked more mature because she was poised and self-confident. She was slightly taller than most of the other children, and slim enough to be called lanky. She had a pretty if not distinctive face, her features were well-balanced rather than outstanding or distractive. She was dressed casually in a cowboy shirt, jeans and runners. Her long, sandy-brown hair was scraped back into a ponytail secured by a rubber-band. There was the impression that she herself chose the clothes she wore and that she arranged her own hair style.

There was a self-assured, self-confident air about her. She seemed a happy, accepted child who could take things in her stride, a competent person. She was not disturbed by being required to read orally for a comparative stranger, as though she was used to reading or appearing in more public situations than a schoolroom. She showed little stress in the reading situation. While conversing with and reading to the investigator she seemed an intelligent and sharp-witted child. There was the sense of a game or conspiracy with the investigator during her portion of the taping.

The actual oral reading gave her little problem; she seemed to enjoy it. Most of her signs of stress occurred when she caught something she misread. The reading material was easy for her and she would probably have done as well with similar material that she had not had a chance to read previously. A competent mature reader "reading to learn" rather than "learning to read", she seemed to read for the joy of it. She seldom missed words, had few hesitations or regressions and was not easily distracted. She could concentrate on the reading task throughout despite the muted background noise of a regular classroom and the array of video equipment. Her confident manner, lack of stress and use of linguistic kinesic gestures is reflected in the teacher-categorizers' comments, particularly in the reading-related and the affect categories (see Table 4) and in the few occurrences of distress and tracking behaviors and the abundance of illustrator behaviors noted by the investigator (see Table 5).

To the investigator this reader appeared to understand the meaning of what she read and was able to convey that meaning both through her paralanguage (pitch, intensity, tempo) and through her use of gesture. She used the greatest number of and the most varied illustrators of all the six readers categorized. While she was interpreting story meaning and displaying that meaning nonverbally, she was capable of economically keeping track of the book handling necessary and of contributing to the nonverbal interpersonal relationship between herself and the investigator.

Table 4

Comparison of Teacher-categorizer Comments for Reader 213 (high ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement	-first little movements -constant movement	-sitting quite still	
reading-related -putting more expression -whole body into reading -knows what going to do -looked, tackled, kept going -very definite	-face showing expression -able to read all that comes -hesitated once -eyes never leave book -really involved -concentrated whole time -knows what reading	-see her phrases -see her punctuation -fluent -hesitation but got it -little nod of head, bit of problem but got it -doesn't anticipate any problems -hand on page ready to go -comprehends	-putting expression -fluently -experienced oral reader -continuous page turning -not hung up on pictures -practice oral reading
affect -nervous later -expression of nervousness -confident -expressed in confident way	-confident		-enjoys oral reading
judgment			-more mature

Table 5

Record of Common Occurrences of Kinesic Behavior for Reader 213
(high ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking		
					m	h	f
09							
10							
11			-shoulder shift front to back with name				
12						continuous	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27				-body shift to right with reading shift to next page			
28		-hand to mouth					
29							
30							
31		-hand ruffling pages					
32					H		
33							
34							
35							
36							
37							
38							
39							
40					H		
41							
42							
43							
44							
45							
46			-shoulder lift and down				
47							
48							
49			-shoulder shift front to back				
50							
51							
52							
53							
54			-shoulder shift front to back				
55							
56							

Table 5 (continued)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking		
					m	h	f
57							
58							
59							
7:00							
01							
02						continuous	none
03							
04	-V both brows down						
05			-shoulder lift		H		
06							
07							
08							
09							
10							
11							
12					H		
13							
14		-hand ruffling pages					
15							
16			-shoulder lift with word				
17							
18	- /right brow down						
19							
20							
21							
22			-shoulder shift back to front with mother's and child's voice				
23							
24							
25							
26							
27							
28							
29	- /right brow down						
30							
31							
32							
33							
34							
35							
36							
37							
38							
39			-shoulder shift with father's voice				

reading speed - fast

m = mouth vocalization hesitations
h = head tracking hesitations
f = finger tracking
H = hesitations

Low Ability Reader

Reader 318 was classified as a low ability reader and as such was being sent by his classroom teacher to the resource room on a daily basis. He did not appear to the investigator to be the worst reader in his class but was definitely one of the bottom third. Even though a low ability reader he had not been held back a grade and was of the same age group as the other children in the class. He seemed very quiet, perhaps restrained. He was a pleasant looking child, wore his blond hair in a short nicely cut bob with "bangs" over his forehead. His facial features were well proportioned and welded into a harmoniously attractive face. He was of average height compared to his classmates and wore on his well-proportioned body the official grade two uniform of faded t-shirt, jeans and runners. This child appeared to the investigator to be one of the children that would not demand attention during the first few days of school.

There appeared to be a controlled, almost restricted air about his movements and it seemed as if he were constantly under a certain amount of strain but had learned to control showing it. He gave the impression which showed in his facial expression and gestures, that he was hiding himself because his face maintained a bland expression throughout the interview and the reading experience and he kept his arms close to his body, often placing one arm protectively across the front of his stomach. What gestures he did make seemed suppressed as his fingers, often almost out of sight, moved more than any other part of his body, often clutching at his book and body. How he felt about reading orally in the presence of his classmates (which he was not used to doing as he read in the resource room), to an unknown teacher and in front of a camera he never revealed. It seemed not that he took it in stride but more that he got through it by stoically putting the situation out of his mind and plodding on until he was released. He seemed accustomed to doing what he was told without regard for his own feelings.

His concentration on the oral reading task was intense. His action slow and meticulous with each page turned deliberately and methodically. There were many pauses and full stops as he worked out a word and checked with pictures or text previously read. His right hand was nearly always involved, inching across the page word by word, often with the other hand at the bottom of the book spasmodically clutching the page edges. It appeared that reading orally was not a joyful, information revealing achievement, but rather a strenuous task. He exemplified a reader bogged down in "learning to read" with little thought yet for "reading to learn". The teacher-categorizers' comments (see Table 6), especially the reading-related comments, reflected his hesitation and slow reading rate as did the many tracking and distress behavior occurrences and the total lack of illustrator or simultaneous behaviors seen by the investigator (see Table 7).

This reader seemed to be task-oriented to the point of doing what he was told even without acknowledging the teller. He seemed totally unaware of the investigator and indulged in no interaction with her. He gave the impression of a very still, very intense, obedient child.

Table 6

Comparison of Teacher-categorizer Comments for Reader 318 (low ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement			
	-head movements not bouncing -head movements not jerky	-pointing	-eyes and finger move
reading-related			
-hesitates on words -having problems -having lots of trouble	-word by word -stops -stumped -works at it -slow -plodder	-word by word -hesitation -decoding -pausing -hesitating -no comprehension -uses finger to follow and mark spot -laborious -doesn't look at pictures	-word for word -wandering - looking at picture and going back -having a tough time -using his finger -not moving lips much
affect			
-kind of pensive -relaxed			
judgment			
-yet wasn't defeated			

Table 7

Record of Common Occurrences of Kinesic Behavior for Reader 318 (low ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	h	f
55							
56							
57							
58	-V both brows down						
59							
8:00					H		continuous
01	-V both brows down						
02							
03						continuous	
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19	-V both brows down						
20		-fist to mouth					
21					H		
22							
23					H		
24							
25							
26							
27							
28							
29							
30							
31	-V both brows down						continuous
32							
33						continuous	
34	-V both brows down				H		
35							
36							
37							
38							
39							
40							
41							
42					H		

Table 7 (continued)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	h	f
43						│	│
44						│	│
45	- V both brows down					│	│
46						│	│
47						│	│
48						│	│
49						│	│
50						c	
51					H	│	c
52					│	│	│
53	- V both brows down				│	│	│
54					│	│	│
55					│	│	│
56							
57							continuous
58		-hand to chin			H		
59							
9:00							
01					H		
02							
03							
04						continuous	
05							
06							
07							│
08							│
09							│
10	- V both brows down						
11							
12							
13							
14						regress	
15		-fingers clutching book edge				regress	
16						│	
17	- V both brows down					│	
18						│	
19						│	
20		-hand to throat and chin					
21							
22					H		
23							

reading speed - slow

m = mouth vocalization hesitations

h = head tracking hesitations

f = finger tracking

H = hesitations

Research Question One

What are the specific kinesic nonverbal behaviors of grade two oral readers?

Grade two oral readers showed a variety of kinesic nonverbal behaviors to the investigator. These behaviors included movements, used alone or in combination, of head, upper body, shoulders, arms, hands, fingers, and face. Certain movements were directed toward handling the reading book, others toward interacting with the investigator, some toward portraying or enhancing the story being read and a last group of behaviors directed toward displaying emotions.

Twenty-four different kinesic nonverbal behaviors used alone or in combination were identified. These included:

- lowering one or both brows
- raising a brow in time with a word
- shifting one or both shoulders up or down, forward or backward in time with a word
- sniffing after a word
- moving the body up or down, forward or back in time with a word or as sentence punctuation
- shifting the head up or down, side to side, forward or back in time with a word or as punctuation
- smiling after a word
- combinations of head and shoulder shifts in time with a word

- hesitations or stops in mouth, head and finger movements while reading
- looking directly at the investigator
- fingers tapping, ruffling or rubbing the book pages
- hands fiddling with a book mark
- rubbing an eye
- clutching the hair, and
- hand to mouth, chin or throat.

Research Question Two

What kinesic nonverbal behaviors of oral readers can experienced teachers articulate?

Teacher-categorizer comments were grouped by the investigator into four categories: movement, reading-related behaviors, affect and judgment. Out of a total of 178 comments each teacher made a nearly equal number of comments (see Table 8).

Table 8

Teacher-categorizer Comments by Category

Teacher-categorizers	Comment categories				Totals	
	movement	reading-related	affect	judgment		
1	8	25	11	1	45	25%
2	9	30	3	0	42	23%
3	10	33	6	0	49	28%
4	7	21	6	8	42	24%
	34 19%	109 61%	26 15%	9 05%	178	100%

All four teachers made more comments on reading-related behavior than all other categories combined, a total of 109 comments or 61 percent of all comments. These experienced teachers seemed to find it easiest to articulate behaviors that dealt specifically with reading skill. Nineteen percent of the teachers' comments were articulated only by a description of the movement involved. They did see and comment on emotion related behaviors (15 percent of all comments), usually in very general terms. Eight out of nine of the judgment comments were attributable to one teacher who used value judgments particularly with one reader, who received five out of the eight judgment comments this teacher made (see teacher 4 in Table 9).

Often teacher comments were very general. For example, "constant movement" does not give any indication of what particular movement was happening nor whether it was linguistic, affective or reading-related. Other comments too were specific, as in "shoulders held differently", but again these comments could not be categorized as linguistic, affect, or reading-related behavior and so were placed in the category "movement".

Table 9

Comparison of Teacher-categorizer Comments by Category and by Reader

Reader	Comment categories for:																			
	Teacher 1					Teacher 2					Teacher 3					Teacher 4				
	movements	reading-related	affect	judgment	total	movements	reading-related	affect	judgment	total	movements	reading-related	affect	judgment	total	movements	reading-related	affect	judgment	total
213	0	5	4	0	9	2	7	1	0	10	1	8	0	0	9	0	6	1	1	8
509	1	5	1	0	7	3	3	0	0	6	1	3	3	0	7	0	1	1	5	7
102	4	3	2	0	9	2	4	2	0	8	5	6	2	0	13	4	3	0	0	7
403	0	7	2	0	9	0	5	0	0	5	1	2	1	0	4	1	3	2	2	8
318	0	3	2	1	6	2	6	0	0	8	1	9	0	0	10	1	5	0	0	6
606	3	2	0	0	5	0	5	0	0	5	1	5	0	0	6	1	3	2	0	6
total	8	25	11	1	45	9	30	3	0	42	10	33	6	0	49	7	21	6	8	42

Research Question Three

In what types of categories can oral readers' kinesic nonverbal behaviors be placed?

This question was answered by the classification by type of investigator and teacher-categorizer perceptions of the readers' kinesic nonverbal behavior by the investigator. The behavior seen was organized by two separate systems. One classification system relied on research in nonverbal communication for direction and the second classification system developed from the data obtained from the teacher-categorizer comments.

Investigator Kinesic Nonverbal Behavior Categories

The kinesic nonverbal behavior cues emitted by the children in this study seemed to separate into three major communication classifications (see Table 10). The readers used facial and body cues to communicate 1) affective (aspects of emotional state, personal tone, self-concept), 2) linguistic text content or meaning (expressing, clarifying, ornamenting the story content or meaning), and 3) reading-related or interaction skills directly related to reading a book orally (reading ability displayed through page turning, finger tracking, vocalization movements of the mouth, and continued reading while looking at the camera/investigator).

Five categories were determined by the investigator to best represent these three classifications of kinesic

Table 10

Comparison of Classification of Reader Kinesic Behavior with Investigator and Teacher-categorizer Categories

Classification of reader kinesic nonverbal behavior (3)	Categories used by:			
	Investigator (5)	Teacher (4)		
1 - affect-related behavior	1 - adaptors 2 - distress	1 - affect	3 movement	4 judgment
2 - linguistic text content or meaning related behavior	3 - illustrators	2 - reading-related		
3 - reading-related behavior	4 - simultaneous behaviors 5 - tracking behaviors			

nonverbal behavior cues emitted by the readers. Three of these categories dealing with affective and linguistic content nonverbal behaviors originated in previous nonverbal communication research (see Table 11). These categories were 1) adaptors, 2) illustrators described by Ekman and Friesen (1969), and 3) distress perceived by Leventhal and Sharp (1965) (see Table 11).

Table 11

Kinesic Behaviors in Affective and Linguistic Categories from Previous Research

Nonverbal Behavior Categories	Behaviors from Previous Research	Research Source
Affective:		
distress	forehead, brow or eye area movements indicating discomfort or anxiety	Leventhal & Sharp (1965)
adaptors	habitual, random implicit gestures triggered by stress	Ekman & Friesen (1969)
Linguistic:		
illustrators	explicit, usage- and cultural-dependent gestures that function simultaneously with speech	Ekman & Friesen (1969)

The other two categories were 4) tracking behaviors, and 5) simultaneous behaviors. These latter two categories developed from the study and reflect the third classification, reading-related behaviors. The simultaneous behaviors category was modeled on Ekman and Friesen's regulator category but the specific behaviors seen by the investigator were different from those described by Ekman and Friesen because while there was interaction between the oral reader and the investigator there were no conversations during the oral reading. The three classifications and their division into the investigator's five categories was schematized in Table 10.

Affective categories. Affective behaviors carry messages about the interactants and/or their relationship (Wiener and Mehrabian, 1968). The two affective classification categories employed were adaptors and distress, designed to categorize body cues and facial cues respectively.

The term adaptors, taken from Ekman and Friesen (1969), identified the first affective classification category. Adaptors are habitual noisy or random behaviors occurring outside the sender's awareness, that have been triggered by stress within the current environment. They are habitual patterns that were originally associated with drives, felt emotions, expectations and differing types of interpersonal interaction in specific settings from the individual's past. Adaptors are defined as self- or object-oriented behaviors, usually fragments of previously learned movements used to satisfy self or body needs in a previous condition or environment and maintained by habit. They included movements involving the body rather than the face, movements such as scratching or picking at the self, hiding of face with the hands, abortive flight movements, tearing at fingernails, etc. (Ekman and Friesen, 1969, 1972). The children observed in this study used movements that indicated flight (whole body rising up and forward over the desk), shrugs (lifting one or both shoulders), hands in space (to mouth, chin, throat, rubbing eyes, scratching head or pulling hair, and ruffling pages or clutching the edges of books).

The distress category was adopted from a study by Leventhal and Sharp (1965) who found that facial movements were valid indicators of stress, and that distress could be detected solely from the upper half of the face. Coleman (1944) and Hanaualt (1944) concurred, stating that discriminations of negative emotions made from the upper half of the face, or discriminations of positive emotions made from the lower half of the face were more reliable than judgments made from the whole face for either emotion. Distress cues were defined as any movement evident in the upper half of the face, in the forehead, brow or eye area that indicated discomfort or anxiety, such as forehead wrinkles, frowning, or furrowed brows, following Leventhal and Sharp (1965). In this study indication of distress tended to be dependent on observations of the brow area alone. Forehead wrinkles were most often not clearly defined in children and as well the forehead area was often obscured by hair. Also the readers' eyes were not a reliable indicator of distress as their eyes were normally downcast while reading.

Linguistic text content category. One category was selected for recording the transmission of text content or meaning clues. Again, using Ekman and Friesen (1969, 1972) the term illustrators was adopted. Illustrators have no independent meaning without the verbal message they accompany. They are explicit, usage- and culture-dependent messages. Illustrators are defined as intentional behaviors that function simultaneously with speech, clarifying and illustrating the central meaning of what is intended to be communicated. They function to accent or emphasize particular words or phrases, to point to an object, person or event, to depict spatial relations, the rhythm or pacing of an event, a bodily action or a nonhuman physical action, the shape of a referent, and, to repeat or substitute for a word or phrase. These behaviors can be facial movements (brow raising, winks), but are more often body movements (shoulder, head, full body lifts, hunches, used singly or in combination, in rhythm or not), and often involve the hands in space. The children in this study tended to use full body, shoulder, and head shifts (back, forward, rocking) and full body, shoulder and head dips as well as brow lifts and sniffs of the nose to emphasize the meaning of particular words or phrases or to "act out" the speech of the character whose lines they were reading.

Reading-related behavior categories. Two categories emerged from the research itself, simultaneous behavior and tracking behavior.

Simultaneous behavior then referred to a reader being able to cope with more than one level or aspect of interaction at a time while reading. Examples of this category included dealing concurrently with the physical book handling, communicating personal nonverbal messages, and interacting with the receiver of the reader's communication. Simultaneous behaviors were defined as any instance in which two or more actions occur concurrently, such as when the child continued to read orally while turning the page and looking at the investigator. In this study the most common simultaneous behavior was the reader continuing to read the last few words on a page while turning to the next page.

Tracking behaviors were those that were reading skill-specific and occurred during the act of reading orally. They were defined as vocalization movements of the mouth, text following movements by the finger or head, varying speed from hesitancy (pausing, regression) to fluency (rapid, smooth, flowing movements).

Distress, adaptors and illustrators are categories that are commonly used in anthropological nonverbal research, but the simultaneous and tracking behavior categories are reading-related and skill-specific behaviors that together refer only to the act of oral reading.

Teacher-Categorizer Categories

Teacher comment categories developed as the investigator grouped remarks made by the teacher-categorizers themselves. There were four aspects of nonverbal behavior that teachers differentiated: 1) movement, 2) reading-related behaviors, 3) affect, and 4) judgment.

Movement category. The movement category included any comment made about a facial or body movement that did not go beyond describing the movement itself. These comments did not include any judgments or references to what these movements mean or with what specific behavior they were associated. The movement category then was defined as comments on nonverbal behavior, appearance, specific movements of hand, body, shoulder, face, head, gaze, with no linking comment to what these movements referred.

Reading-related behavior category. Reading-related behavior comments included comments about fluency, comprehension, vocalization and tracking. The reading-related category was defined as any comment on specific features or qualities of the reading act and any comment on reading ability or skill, such as speed, decoding, fluency, expression, phrasing, comprehension, difficulty or hesitancy.

Affect category. Affect category comments centered on perceptions of emotions, feelings or attitudes. The affect category was defined as comments related to state of mind, emotion, or feelings, such as anxiety, concern, fear, apprehension, confidence, assurance, calmness and nonchalance.

Judgment category. Judgment comments were generalized, character-related comments and were defined as comments on character, disposition, personality development, potential or promise.

Teacher-categorizer comment categories were compared in Table 11 to investigator categories and the three major kinesic nonverbal behavior classifications used. While the comments made by the teacher-categorizers were less specific than the investigator's categorization, both types of categorizations were found to cover the behavior exhibited.

Research Question Four

Is there a correspondence between the categories of teacher-categorizers' comments about children's nonverbal behavior during oral reading and the categories of children's kinesic nonverbal behaviors as identified by the investigator?

Referring to the data there does seem to be a correspondence between the investigator's categories of kinesic nonverbal behavior and categories derived for the teacher-categorizers' comments in general, but there was not an exact behavior-for-behavior correspondence. Both category systems covered the same field of behavior and each teacher-categorizer comment could be related to one or another of the investigator's more specific categories (see Table 12). The only real difference between the teacher-categorizers' and the investigator's view of the readers' nonverbal behavior was one of access to technical information. The investigator's categories were based on a knowledge of nonverbal research and research techniques while the teacher-categorizers' comments were based on an intuitive and unconscious knowledge of nonverbal behavior.

One category used by the teacher-categorizers, judgment, while a valid observation of nonverbal behavior, was not included by the investigator. Judgment of personal characteristics was derived more from observation of general or overall kinesic behaviors such as posture and

Table 12

Comparison of Investigator Observations and Teacher-categorizer Comments by Category

Classification of Kinesic Nonverbal Behavior	Investigator Observations	Teacher-categorizer Comments
affect-related behavior	**distress**	
	-brows drawn together - left brow down at inside corner	-lack of movement in face (m) -blinks eyes a lot (m)
	adaptors	
	-fist to eye -scratching head -hand to mouth	-hand up as struggling (m) -scratched head (m) -rubs eye (m) -nervous (a) -not relaxed (a) -confident (a) -interested (a) -get it over with (a)
linguistic text content meaning-related behavior	**illustrators**	
	-brow lift after "happy" -shoulder shift front to back with character change -sniff with "stop sniffing" -shoulder dip with "he said" -head back - punctuation at sentence end -head back and side smile with "excitement"	-whole body into reading (m) -leading a little song with head (m) -see her phrases (rrb) -see her punctuation (rrb) -more efficient than expressive (rrb) -no comprehension (rrb)

Table 12 (continued)

Classification of Kinesic Nonverbal Behavior	Investigator Observations	Teacher-categorizer Comments
behavior directly related to reading a book orally	simultaneous behaviors	
	-reads, looks up -reads, move body to other page -reads, turns page, looks at camera, smiles	-looked up, saw you, kept going (m) -never looks up (m)
	tracking behaviors	
	mouth vocalizations	
	-hesitation -continuous	-stopping and starting (rrb) -fluent (rrb)
	head tracking	
	-hesitation -continuous	-moves head with page not just eyes (m) -hesitated - head up and down (rrb) -rhythmic movement of head side to side (m)
	finger tracking	
	-occurrence -surreptitious	-uses his finger (m) -finger helping find spot (m)

(a) = affect

(m) = movement

(rrb) = reading-related behavior

physical appearance rather than from specific gestures. The investigator's nonverbal categories included only specific gestures or combinations of gestures and facial expressions.

The teacher-categorizers' affect category comments tended to be descriptive adjectives or phrases that portrayed general affective or emotive states while the investigator's affective categories described time-coded incidents of specific gestural behaviors of face and body that related to current stress level or to habitual responses adapted from past experience. Again, the teachers' comments, although categorizable under the same type of headings as the investigator's affective categories, were more general than the investigator's comments (see Table 12).

The reading-related behavior category of the teacher-categorizers corresponded to the investigator's illustrator, simultaneous behavior, and tracking behavior categories. The teacher-categorizers' reading-related comments were varied including both general comprehension and speed comments and the more specific comments (see Table 12).

The teacher-categorizers' movement category seemed to be a catch-all category. Included were comments that related to all the investigator's categories (see Table 12). For comments in this category, teachers were able to note and comment on specific movements but not to be able to interpret the movement's meaning nor relate them to affect, text-content or reading-related behaviors. The teachers saw the movements, knew these movements meant something, knew that the movements were related to what the child was doing, could describe the movements, but could not articulate the movements' nonverbal meaning. They could describe what was happening but could not articulate specifically nor infer the connection with affective, linguistic or reading-related type behaviors. This mixture of unrelated and unarticulated behaviors in the movement category helped to explain the seeming lack of correspondence between teacher-categorizers' and investigator's categories.

Although the teacher-categorizer and investigator comments and categories were based on different levels of awareness of nonverbal behavior, a correspondence between the perceptions of both teacher-categorizers and investigator could be seen, even though no one-to-one correspondence was evident.

Research Question Five

Is there a relationship between the reading ability (high, average and low) of children and particular kinesic nonverbal behaviors?

Although each child reacted individually it was noted that readers within each ability group showed similar kinesic nonverbal behaviors. The high ability reading pattern included more illustrators and fewer mouth vocalization and head tracking hesitations, no finger tracking and a faster reading speed than the average or low readers. Table 13 and Figure 1 compare the readers' kinesic behaviors. In the tracking behavior category it should be noted that to count those behaviors effectively it was necessary to divide the category into three sub-categories: mouth vocalizations, head tracking and finger tracking and to make observations of each sub-category separately (see Table 13 and Figure 1). These readers embellished their spoken words with nonverbal linguistic content. They were capable of up to four behaviors simultaneously (read, turn page, look up, respond to investigator's smile), and they did not pause when turning a page but continued reading immediately. All "learning to read" aspects of word identification skills were muted and the "reading to learn" aspects concerned with transmitting content were enhanced in the nonverbal behavior of these readers. High ability readers seemed to have no concern for the physical act of reading but appeared to be concentraing more on interpreting

Table 13

Comparison of Total Number of Observations in Common in each Kinesic Behavior Category by Reader

student number	sex	*classroom teacher ability grouping	standardized test percentile score	**reading speed	kinesic behavior categories						
					distress	adaptors	illustrators	simultaneous	tracking - mouth vocalizations	tracking - head tracking	tracking - finger tracking
213	F	H	87	R	2	3	7	1	0	0	0
509	M	H	87	A	4	4	6	1	3	4	0
102	M	A	86	A	2	8	0	1	6	7	0
403	F	A	88	A	0	3	2	1	10	4	0
318	M	L	53	S	5	4	0	0	1	5	4
606	F	L	51	S	0	5	0	1	4	4	2

* classroom teacher reading ability grouping

H - high

A - average

L - low

** reading speed

R - rapid

A - average

S - slow

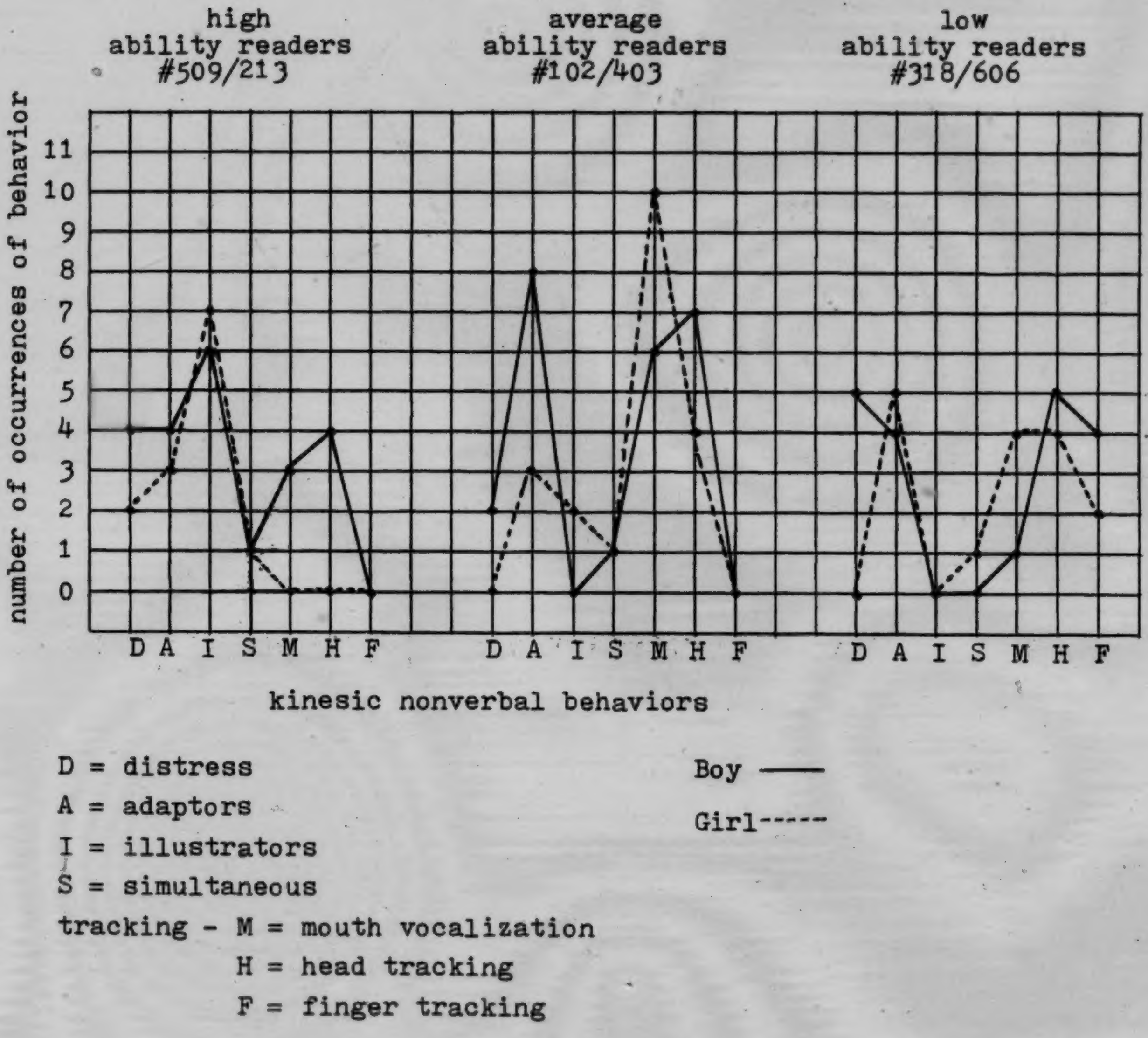


Figure 1

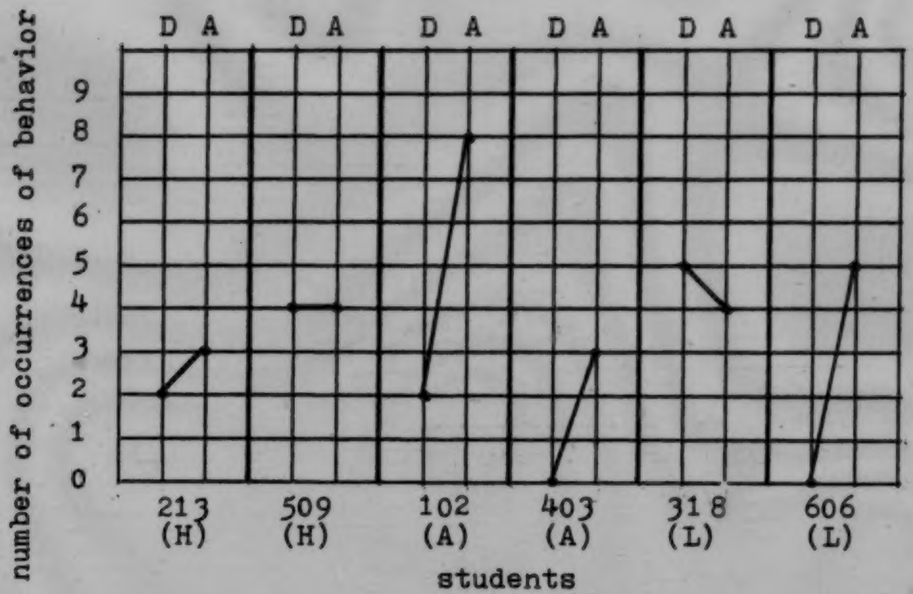
Comparison of Kinesic Nonverbal Behaviors

of High, Average and Low Ability Readers and demonstrating the content and meaning of a story. To use a commonly employed phrase, the high ability readers read "with expression". They seemed to be concerned with "reading to learn", not with "learning to read".

On the other hand, low ability readers revealed a very different pattern. They showed no illustrators nor complex simultaneous behaviors (using no more than two behaviors together), but more mouth vocalization. They were the only readers to show finger tracking and were seen to read at the slowest speed (see Table 13 and Figure 1). Their simultaneous behaviors at best consisted of reading the last word or two of one page while turning to the next where they usually paused for several seconds to scan the page and pictures before continuing to read. Low ability readers did not read "with expression", but seemed to concentrate almost completely on competently reproducing orally the words on the page.

The average readers seemed to be in some sort of transition phase between high and low ability as they combined both high and low ability behaviors. Average ability readers used fewer illustrators and simultaneous behaviors than the high ability readers, but no finger tracking,,read at an average speed, and showed a higher number of mouth vocalizations and head tracking hesitations than either the high or low ability readers (see Table 13 and Figure 1). It seemed that, while they read faster and more competently than the low ability readers, they were less sure than the high ability readers and regressed to verify (see Appendix B, reader 403). They were becoming concerned with "reading to learn" as seen by their beginning use of illustrators but "learning to read" was still paramount.

Although there seemed to be a relationship observed between some of the kinesic nonverbal behaviors categorized and general reading ability, the two affect categories, distress and adaptors, did not seem to be related to general reading ability but to personal set or role. Emotional state seemed to affect all readers differently and scores on affect categories did not seem to be connected to a particular reading level. Each child displayed his emotional state differently. A reader who showed few movements in the distress category might show his emotional state more clearly through the use of adaptors, or readers might use both the distress and adaptor categories equally to show their anxiety (see Figure 2). For example, reader 509, a high ability reader, showed more distress and adaptors as well as mouth vocalization and head tracking hesitations and less illustrators than the other high ability reader and even more distress than one average reader and more adaptors than the other average reader (see Table 13 and Figure 1). At the same time, even though showing more distress and adaptors, the low ability readers' distress and adaptor scores were not sharply different from the high or average ability readers' scores. The accuracy of the distress category scores was weakened by two readers with "bangs" that concealed their brows (readers 403 and



D = distress
A = adaptors

H = high ability readers
A = average ability readers
L = low ability readers

Figure 2

Comparison of Differences in Distress and Adaptor Scores Among Students

606), also concealing any signs of stress.

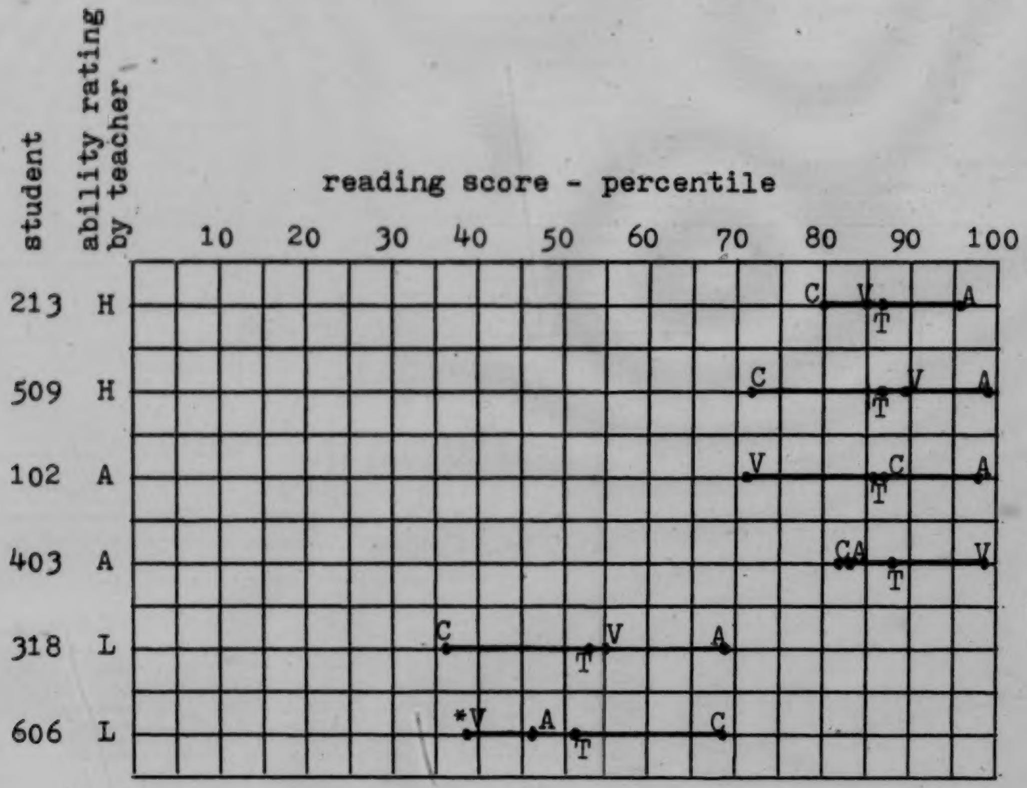
One other interesting comparison between the high, average and low ability readers was noted when their standardized reading test results were examined (see Table 14). While their individual vocabulary, word analysis and comprehension scores vary, all high and average ability readers were within two percentile points of each other for their total score but the low ability readers were thirty percentile points below them (see Figure 3). Three things were noted here. First, according to student scores this test did not seem to show a step by step progression from low to average to high ability. Secondly, there seemed to be little difference between the high and average ability readers according to the test's results. Finally, similar achievement in comprehension, vocabulary and word analysis did not turn an average ability reader into a high ability reader in these teacher-categorizers' perceptions.

Table 14

Comparison of Standardized Reading Test Percentiles and Classroom Teacher Ability Rating

	Percentiles				
student	vocabulary	word analysis	compre-hension	total	classroom teacher rating
213	85	96	80	87	H*
509	89	99	72	87	H
102	72	98	87	86	A
403	99	83	82	88	A
318	55	69	36	53	L
606	39	46	69	51	L

*H - high ability reader
A - average ability reader
L - low ability reader



*V = vocabulary

A = word analysis

C = comprehension

T = total

Figure 3

Comparison of Standardized Reading Test

Percentiles for All Readers

Research Question Six

Can experienced teachers assess reading ability of children through kinesic nonverbal behaviors seen while the children are reading orally?

Experienced teachers detected reading ability through their observations of kinesic nonverbal behaviors. Teacher-categorizers' reading level ratings showed this plainly and as well, their comments had a different ability focus for each of the three reading levels.

Teacher-categorizer Comments by Ability

There was a definite difference in the type of comments the teacher-categorizers made about children for each of the three reading ability groupings. Looking at their comments it was apparent that they saw and could state a difference between readers. For example, the teacher-categorizers' comments in the movement category varied as follows:

for the high ability readers,

- leading a little song with head
- whole body into reading
- face showing expression
- see her phrases
- see her punctuation

for average ability readers,

- almost read lips
- doesn't use fingers
- hand up as struggling

- distracting little things
- looked up, saw you, kept going

for the low ability reader,

- uses finger to follow and mark spot
- lack of movement in face
- extra distractive movements
- not moving lips much.

For the reading-related behavior category teacher-categorizers made such comments as:

for the high ability readers,

- fluent
- really involved
- doesn't anticipate any problems
- very definite
- attentive

for average ability readers,

- putting a lot of effort into it
- intent
- fluent
- hesitates, goes on as fast as possible
- eyes and ears taking over

and for the low ability readers,

- struggling
- stumbling
- trying very hard
- word by word
- tedious way to read
- wandering, looking at pictures and going back.

In the affect category teacher-categorizers commented: for the high ability readers,

- comfortable
- not worried
- a little nervous

for average ability readers,

- not aware of anyone else
- wants to just get through
- not relaxed

and for low ability readers,

- feels has to do this
- loses interest.

Teacher-Categorizer Ability Ratings

When asked specifically for a judgment of reading ability for each reader (high, average or low) each teacher-categorizer rated at least two-thirds of all readers the same as the children's classroom teacher (see Table 15). Two teacher-categorizers (teachers 1 and 4) rated the ability reading level for two of the six children differently from the classroom teacher and the other two teacher-categorizers (teachers 2 and 3) rated the reading level for only one out of six readers differently from the classroom teacher. No teacher-categorizer's judgment of reading ability level differed from the classroom teacher's judgment by more than one level for any reader. In other words, no teacher-categorizer rated a high ability reader as low or a low ability reader as high.

Table 15

Comparison of Teacher-categorizers' Ability Ratings

student	Teacher-categorizers' ability ratings by:				classroom teacher's rating	agreement
	teacher 1	teacher 2	teacher 3	teacher 4		
213	A	H, HA	H	H	H	75%
509	H	H	H	A	H	75%
102	LA, A	LA, A	A, LA	A	A	100%
403	A	H, HA	A	H	A	75%
318	L	L, LA	L	L	L	100%
606	A, LA	A	A	L	L	25%
	66%	83%	83%	66%		

H = high
A = average
L = low

Most students' reading levels were judged differently from the classroom teacher by only one teacher-categorizer. Students 213, 509 (both high ability) and 403 (average ability) were rated differently from the classroom teacher by only one teacher-categorizer, while students 102 (average ability) and 318 (low ability) were consistently rated the same as the classroom teacher's rating. Only one reader was rated differently from the classroom teacher by more than one teacher-categorizer. Student 606 (low ability) was rated differently from the classroom teacher by three out of four teacher-categorizers. She was seen as an average or low average reader by three teacher-categorizers even though her classroom teacher, the reading test and the speed interrater for the investigator's tracking behaviors category rated her as a low reader who read at a slow speed. The uncertainty of the teacher-categorizers as to her reading ability was reflected in the heterogeneous mixture of comments made about her. The comments alternated from "lack of movement in face" to "extra distractive movements" in the movement category, from "struggling" and "stumbling" to "pretty steady" in the tracking behaviors category, and from "feels she has to do this" to "loses interest" in the affect behavior category. Other interesting comments made by the speed interrater about this reader were that she looked as if she had memorized the story and was rote reading, and that she probably received considerable help at home. This reader was judged slow at reading by the speed interrater and had the lowest standardized reading test score of the six readers.

Appearance Rating

Because a majority of the teacher-categorizers rated reader 606's ability differently than the classroom teacher, a physical attractiveness ranking scheme was devised to determine if her appearance was affecting their judgments. Three graduate students (raters 1, 2 and 3 in Table 16) ranked each of the six readers for appearance. Reader 606 was seen as more attractive than four of the other readers (403, 102, 213, 318) and tied with the sixth reader (509) for the highest rating for attractiveness.

It was interesting to note that the physical attractiveness rating also showed that one high reader (213), a girl wearing a boy's cowboy shirt with her long hair scraped back into a ponytail was seen as next to least attractive. Although she was observed to be probably the best and surely the most confident reader in the group of six (see Figure 2), she was rated by one of the teacher-categorizers as an average reader and a high or high-average reader by one other teacher-categorizer (see Table 15).

Table 16

Comparison of Readers' Physical Attractiveness Ratings

student	sex	ability rating	raters 1	raters 2	raters 3	averages
509	M	H	6	4	5	5.0
606	F	L	6	4	5	5.0
403	F	A	5	4	5	4.6
102	M	A	4	4	4	4.0
213	F	H	4	4	3	3.6
318	M	L	5	3	2	3.3

As well, student 509, who tied for the highest appearance rating and received a better teacher-categorizer ability rating than the other high reader, was seen as reading at average speed by the interrater and as showing more distress than the other high or average readers, more adaptors than the other high reader and one of the average readers, more mouth and head hesitations and less illustrators than the other high reader. His comprehension score on the standardized reading test was at the 72 percentile which was between eight and fifteen points lower than the other high and average readers and only three points higher than one of the low readers (see Tables 14, 15 and 16).

Summary

The nonverbal behavior displayed by these oral readers were categorized into two kinesic nonverbal behavior systems and contained the information necessary for other and more subtle classification systems in both kinesic and other areas (paralanguage, artifacts) of nonverbal behavior. The kinesic nonverbal behavior of each reader differed from each other reader's kinesic nonverbal behavior depending on ability, emotional state and personal ways of coping. Some individual categories of kinesic nonverbal behavior seemed tied to reading ability level (illustrators, simultaneous behavior, mouth vocalization and head tracking hesitation, and finger tracking), while other categories seemed tied to affective factors (distress and adaptors). Experienced teachers articulated kinesic nonverbal behavior best in the reading-related terms that they were familiar with and then became more inexact relying on physically descriptive terms, emotion laden terms or finally character-related terms. Experienced teachers detected reading ability through kinesic nonverbal behavior but their perceptions were affected by the readers' physical attractiveness. The investigator's gesture and facial expression categories and the teacher-categorizers' categories were roughly parallel.

Chapter V

SUMMARY

This chapter relays a brief summary of the study, a discussion of the study findings and conclusions reached from those findings. Additional limitations, suggestions for further research and implications for teachers are also included.

Overview of the Study

The purpose of this study was twofold; to determine and categorize some of the nonverbal behaviors of grade two oral readers, and to determine if experienced teachers could use nonverbal behaviors to accurately judge the ability and interpret correctly the emotional state of each reader.

Data were gathered through recording the readers on videotape. By viewing this videotape the investigator developed a classification system of affective, linguistic and reading-related behaviors. As well, experienced teachers viewed the videotape from which the sound had been eliminated to classify each child as a high, average or low ability reader. This classification was tested against the reading levels assigned by the readers' classroom teacher and against a standardized reading test taken by the readers. The experienced teachers also made comments about each reader and these comments were classified into four categories, movement, reading-related behaviors, affect and judgment. An attempt was made to coordinate the categories developed by the investigator with the teacher-categorizer comment categories.

Major Findings and Discussion

The data were collected and analyzed in accordance with the research questions presented in Chapter I and in this section the major findings are presented and discussed for each research question.

Research Question One

What are the specific kinesic nonverbal behaviors of grade two oral readers?

Grade two readers showed a variety of affective, linguistic and reading-related kinesic nonverbal behaviors through their facial expressions and gestures used alone or in combination. Grade two readers could communicate more than one bit or kind of information at the same time. Some grade two children made a good many movements and others did not. Their kinesic nonverbal behavior could be differentiated into at least three types. They communicated their affective state, both personal long range emotional reactions and immediate situational reactions. They also communicated their degree of skill in reading, both what they had mastered and what was still difficult for them. In addition, they communicated the content and meaning of what they were reading, switching from character to character in dialogue and expressing the emotional tone intended by the author. Kinesic nonverbal behavior seen in this study then related to the emotional state of the reader, to the competence of the reader and to the meaning of what was being read.

Research Question Two

What kinesic nonverbal behaviors of oral readers can experienced teachers articulate?

The teacher-categorizers in this study made most of their comments in the reading-related terms that were part of their professional vocabulary. They also made comments on the emotional or personality characteristics of each reader. Some comments were restricted to a description of the movement seen. The teacher-categorizers were not able to articulate the viewed behavior in the accepted nonverbal idiom but they understood what they saw and from that intuitive nonverbal understanding could make deductions about each reader. Their acknowledged lack of awareness of the research in nonverbal behavior and their lack of knowledge of accepted nonverbal terms limited their conscious systematic use and articulations of nonverbal behaviors.

Research Question Three

In what types of categories can oral readers' kinesic nonverbal behaviors be placed?

The kinesic nonverbal behavior of the oral readers in this study was categorized in two systems. One system depended on research for direction and it included two affective categories - distress and adaptors, one linguistic category - illustrators, and two reading-related categories - simultaneous and tracking behaviors. The second system developed from comments made by teacher-categorizers which included four categories - movement, reading-related, affect and judgment. Nonverbal behavior other than kinesic nonverbal behaviors was available for study from the research data but was beyond the scope of this study.

Research Question Four

Is there a correspondence between the categories of teacher-categorizers' comments about children's nonverbal behavior during oral reading and the categories of children's kinesic nonverbal behaviors as identified by the investigator?

Both systems of categories, the investigator's based in nonverbal research and the teacher-categorizers' based in the data collected, described the same general behavior but in different terms, and not with an exact behavior-for-behavior correspondence. The knowledge base for each system, research in nonverbal behavior for the investigator and intuitive understanding for the teacher-categorizers, showed in the differences and amount of specificity in the data collected. The investigator's observation of a kinesic nonverbal behavior would include noting in the appropriate category all the movements seen and the exact time those movements took place, while the teacher-categorizers' comments occurred after the behavior had been seen and were not time-coded, and most comments did not make reference to specific movements. The two systems did not overlap exactly as the teacher-categorizer category judgment was not represented in the investigator's category system.

Research Question Five

Is there a relationship between the reading ability (high, average and low) of children and particular kinesic nonverbal behaviors?

Reading ability may or may not be revealed through particular kinesic nonverbal behaviors. Two interpretations are possible, one dependent on the validity of group standardized reading test scores, the other on the validity of teacher judgments of reading ability.

The children judged by the classroom teacher and the teacher-categorizers as high and average readers received indistinguishable scores on the standardized reading test, while the readers judged as low received considerably lower scores. Assuming the validity of the test scores, the teachers may have judged some high readers as average readers because of their differences in head tracking and mouth vocalization hesitations. Since teacher-categorizers commented on reading-related behaviors more than the three other categories of behavior, this attention to reading-related behaviors may have resulted in a bias against readers who use them even though the behaviors (head tracking and mouth vocalization hesitations) may not reflect actual differences in ability. Nevertheless the data on finger tracking indicated that both classroom teacher and teacher-categorizers may have legitimately used this cue to differentiate the high from low readers as assessed by test scores.

According to a second interpretation, the classroom teacher may have provided the more valid index of reading. In this light, each child's reading ability could be accurately judged by the teacher-categorizers using different patterns of kinesic nonverbal behaviors to identify high, average and low ability readers. High ability readers were seen as using illustrators and simultaneous behaviors, suggesting that proficient oral readers were "storytellers" concerned with expressing the meaning of the story and interacting with their listener. Average ability readers used many head tracking and mouth vocalization hesitations. These readers, while reading at near the speed of the high readers, were not "storytellers" and often seemed unsure of the words they read. The low ability readers were the only readers to use finger tracking. They were totally concerned with producing the correct words and had no time for "storytelling" or interaction. These six readers through their kinesic nonverbal behavior seemed to illustrate a pattern of movement from low to high ability, from total concern with deciphering and orally reproducing the printed word to decoding competence to interpreting meaning and embellishing content via nonverbal linguistic behaviors. This was a movement from complete absorption and involvement between reader and printed symbols to sense of audience and involvement with meaning and the communication of that meaning to others.

Regardless of the ability of the reader, they reacted idiosyncratically. Of the six readers several seemed self-confident and assured, others hesitant and unsure. This contrast extended right across the ability groupings. It seemed their emotional reaction differed with self-concept or personal emotional state rather than with reading skill.

Research Question Six

Can experienced teachers assess reading ability of children through kinesic nonverbal behaviors seen while the children are reading orally?

The teacher-categorizers in this study were capable of using their unconscious knowledge of kinesic nonverbal behavior to make correct decisions about the ability of readers and to make incisive interpretations of each reader's affective state. They had little trouble giving each child an ability rating (high, average or low) and their comments had a different focus for each of the three reading levels.

While generally quite competent, the accuracy of the teacher-categorizers' judgments appeared to be affected by the reader's physical appearance in one instance. This means that attractiveness or lack of attractiveness could lead to a misjudgment of the child's actual reading ability. In this study one reader (606) was clearly seen by the teacher-categorizers as more attractive than most of the other children and this in combination with the possibility stated by the speed interrater that her reading material had been rote learned at home (she did in fact show less mouth vocalization hesitations and head tracking hesitations and less finger tracking than the other low reader) may have been the reason three out of the four teacher-categorizers saw her as an average reader rather than as the low reader her classroom teacher and the standardized reading test rated her. Misjudgments about this reader and two others (213, 509) may also indicate that teacher-categorizers were perhaps hierarchically selective in their interpretation of nonverbal behaviors.

Nevertheless, despite the possible distraction that physical appearance may cause, experienced teachers did detect general reading ability and make accurate judgments of reading ability level through the kinesic nonverbal behavior of oral readers seen on a videotape.

Conclusions

From previous research it has been shown that people can send and receive affective and linguistic kinesic nonverbal communication and from the data of this study it has been shown that oral readers and experienced teachers are no exception. While involved in an instructional situation, in this case practicing oral reading, both readers and teachers were communicating on a nonverbal level. The kinesic messages sent varied with each reader and each teacher varied also in her reception of the content of those messages. Nonverbally, oral readers sent cues concerned with how they felt about themselves and about the reading situation, cues about their reading skills and cues about the meaning of the story being read. Teachers saw and interpreted all three types of kinesic messages. As well, teachers could judge oral readers' reading ability level from their kinesic nonverbal behavior.

Additional Limitations

In addition to the limitations mentioned in Chapter I, a number of concerns developed from essentially three sources during the study. One group of limitations stemmed from the mechanics of the study. First, the video equipment used did not produce as clear and distinct a picture as needed for rigorously distinguishing subtle changes in facial movements. Secondly, even though allowances had been made to position the camera at eye level, the readers' faces were downcast while they read. Perhaps a desk tilted at a different angle and a book held differently would have helped alleviate this problem. A third mechanical problem involved the need for the use of the same time code for the readers' videotape as for the audiotapes used by teacher-categorizers when they commented on each reader while viewing the videotape without the sound. If this had been possible, teachers' comments could have been connected more closely by time code to specific nonverbal behaviors. Finally, the presence of "bangs" covering some of the readers' brows limited the amount of data available for computation in the distress category.

A second major concern involved difficulties encountered with obtaining interrater scores for the investigator categories. First, the investigator used one interrater for each of the five categories, but it developed that each interrater viewed and commented on differing amounts of behavior. In the case of the reading-related behaviors, one interrater was insufficient because she was asked to observe four types of behavior (speed, mouth vocalization hesitations, head tracking hesitations, and finger tracking) while other interraters observed one type of movement only.

The second problem involving interrating category scores arose when the specifics of the behavior to be observed were not sufficiently defined in advance. In some categories observations could be confined to "Yes, I see it" or "No, I do not" responses while in other categories observations included differing degrees or a range of aspects of the observed behavior. The latter happened particularly in the adaptor, illustrator and simultaneous behavior categories. For example, in the simultaneous behavior category the interrater would make comments such as "he looked up, saw you, kept going" and "she never looked up". The second observation was perfectly valid but the investigator would have recorded only the first. This may help to explain the low interrater reliability score in some categories.

A third area that may have been a problem was the probable differing reaction to the stress of being in a highly structured reading situation. Buck (1975) says that children's ability to send affect messages nonverbally is related to various personality variables. Some children are "naturally" more restrained than others; some "naturally" move more than others. Perhaps videotaping these readers in a non-reading activity as a lead-in to the reading activity would have led to a more balanced perception of the readers' behavior. The emphasis then would have been more on the child's habitual nonverbal behavior rather than on his changed nonverbal behavior due to a highly structured and, perhaps for some, highly stressful situation. Conversely, one researcher did find that there was a positive relationship between the reaction scores secured in non-reading situations for dependence, aggression and withdrawal (Natchez, 1959). If this relationship extends to all aspects of nonverbal messages, such a non-reading beginning activity would not necessarily have changed the readers' nonverbal behavior.

Suggestions for Further Research

Galloway (1971) said that the challenge facing students of nonverbal behavior was to collect data that showed that nonverbal cues provided information that was crucial and yet unobtainable through verbal data. This study has done that to some small extent and from it there appears to be a number of potential avenues of study worth pursuing.

A developmental progression, from the reader's total involvement with decoding the text to the reader being concerned with expressing text content and story meaning, which was not seen in the standardized reading test scores, is implied in this study. The low ability readers exhibited kinesic nonverbal behaviors that showed their hesitancy and need to keep track of each word, the average ability readers showed a mixture of all kinesic behaviors and many hesitations, while the high ability readers exhibited behaviors that showed their ability to "tell" nonverbally the story they were reading and their ability to interact with the listener. A longitudinal study might help reveal if there is such a progression and if every school child works through such a process from total immersion in decoding to illustration of story content. Or was this seeming difference due to the particular reading program the readers in this study encountered in their schooling, or to exposure to school-taught reading in general? A longitudinal study might show if illustrative and simultaneous behaviors continue to develop for each reader. As well it would be interesting to determine if each reader's paralanguage (tone, volume, etc.) reinforces the differences between high, average and low ability readers seen in this study.

Another implication of this study is that personality or self-concept rather than reading ability level affects how children react nonverbally. An in-depth comparison of nonverbal behavior of children when reading, when engaged in other areas of study and while in their home environment could help determine the balance of personal, situational and ability reactions that is reflected in nonverbal observation.

Cultural differences can produce divergent nonverbal communicative reactions. Socioeconomic status definitely influences the reactions of children. Different cultures and cultural sub-groups live by different attitudes and values, and expect differing responses from their children.

A study of the nonverbal behaviors of readers of different cultural sub-groups might reveal different reactions not based on ability or personality but on culture. Secondly, in most cultures men and women are allowed different reactions. In our culture women have been found to be better decoders of nonverbal behavior. A study in a classroom situation questioning if girls are more competent senders of nonverbal behavior as well as more competent receivers might shed light on possible misjudgments of reading ability due to nonverbal rather than reading competencies. Perhaps the low ability reader judged to have been a better reader was actually a more competent nonverbal encoder.

In this study physical appearance influenced some teachers' judgments about reading ability. Further research on attractiveness might show whether some forms of nonverbal communication (appearance) take precedence over other forms (reading-related, etc.). Such research might reveal whether such a hierarchy of nonverbal behaviors exists for classroom teachers.

Another aspect of teacher nonverbal behavior that may be worth study would be teacher nonverbal behavior while viewing readers on videotape. As found in this study, teachers are very inarticulate when describing nonverbal behavior. The nonverbal behavior of a teacher while trying to describe and interpret the nonverbal behavior of a reader might reveal a good deal more of what they see than they are capable of revealing through their verbal utterances.

Further research into what occurs nonverbally when children read and into the nonverbal competencies of teachers when involved in a reading situation cannot help but enhance our understanding of readers and reading.

Implications of Major Findings

In general, teachers would do well to become consciously aware of their own and their students' nonverbal behavior. First, they could gain important information about the child's reading ability unavailable through other means; secondly, they could gain information in all areas of the children's response to curriculum and classroom life, and finally they could use this information to become more competent instructors.

Three types of nonverbal behaviors give information about reading skill. Reading-related behaviors such as finger tracking, hesitations or regressions in head tracking or mouth vocalizations can indicate confidence and skill in conquering the basic process of reading. Affective behaviors such as distress shown in the face or adaptor-type gestures can also indicate confidence or areas of concern. Gestures that relate to the meaning of a story also inform about the child's skill and competence. All the nonverbal behaviors reported in this study can help a teacher interpret a child's reading skill more accurately.

A conscious awareness of children's nonverbal behavior is advantageous to a teacher, not just for reading instruction, but in all areas of the curriculum. It is a natural and efficient way to survey for understanding, confusion, disinterest and so forth in any subject area. Children's nonverbal behavior allows for the quick transmission of information that is time consuming if using verbal communication. Each child's nonverbal behavior is an expression of themselves and contains information they cannot articulate or would not dare articulate verbally. Teachers need to become more consciously aware of all the nonverbal behaviors of each child in her class and to acknowledge that the nonverbal behavior of each child was learned as an infant and is a reflection of the child's homelife, parental attitudes and cultural values and beliefs.

To be more competent, teachers will find it necessary to be conscious of their own nonverbal communication as well as that of the children under their care. If teachers were cognizant of how their own nonverbal communication affects each individual and group with which they interact, especially in their own classrooms, they could be sure of being able to be more efficient instructors if only through consciously coordinating their verbal with their nonverbal messages.

Teachers can become more sensitive to interpersonal relationships through a greater knowledge of nonverbal behavior. They can learn to better understand themselves and their relationships with others, including the children in their classes, through a study of nonverbal communication. By understanding even some of the facets of nonverbal behavior, teachers will be in a position not to let irrelevant factors such as clothing, cleanliness or beauty get in the way of a clearer understanding of each child's spirit, potential and skill.

Concluding Statement

Grade two children send complex nonverbal messages while engaged in the act of reading orally, regardless of their reading ability. They send messages about the immediate task of reading, their emotional state and about the content and meaning of what they are reading. The specific messages sent depend on the ability level of the reader and on the affective state of each child. Experienced teachers, even though admittedly not consciously aware of nonverbal communication, can interpret nonverbal messages and judge reading ability and emotional state.

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APPENDIX A:

Teacher-categorizers' comments

Comparison of teacher-categorizer comments for reader 509 (high ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement			
-shoulders held differently	-nodding head -rhythmic movements of head side to side -body very still just head movements	-blinks eyes a lot	
reading-related			
-no expressive difficulty -more efficient than expressive -turns page with confidence -attentive -competent	-leading a little song with head -hesitated, head up and down -fairly steady	-moves whole body when goes to next line -hesitates -hesitates with confidence	-reads well
affect			
-more confident		-confident -comfortable -not worried	-a little nervous
judgment			
			-conscientious -wants to do best job -perfectionist -neat, tidy, organized -hard worker

Comparison of teacher-categorizer comments for reader 102 (average ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement			
-distracting little things -jerky hand movements -looked up, saw you, kept going -hair tousled	-little distracting -hand up as struggling	-distracting -distracting actions -hand goes up when some difficulty -rubbing eye -mouth movements fairly steady	-rubs eye -scratch head -able to look up, keep going -uses finger a bit
reading-related			
-can't handle reading three minutes -fairly confident -not reticent	-eyes and ears taking over -a few problems -maybe slow -steady	-vision problem -hesitation -pausing -decoding hesitancy -not fluent -struggling	-starting and stopping -word for word -not fluent
affect			
-just get through -nervous	-didn't want to be there -nervous	-concerned -not relaxed	
judgment			

Comparison of teacher-categorizer comments for reader 403
(average ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement			
		-breathing deep, fast	-never looks up
reading-related			
-putting a lot of effort in -smooth -really hesitates -less trouble -less difficulty -trying -struggling	-enunciates clearly -almost read lips -steady -does not use fingers -does not hesitate much	-going as fast as can -hesitates, goes on as fast as possible	-intent -fluent -putting expression
affect			
-interested -not confident		-get it over with	-comfortable -not aware of anyone else
judgment			
			-all-around student -active and interested

Comparison of teacher-categorizer comments for reader 606 (low ability)

Teacher 1	Teacher 2	Teacher 3	Teacher 4
movement			
-interesting little habit (bookmark and hands) -lack of movement in face -extra, distractive movements		-head movements side to side	-likes bookmark
reading-related			
-struggling -having more difficulty	-stumbled -stumble or go back -redid -read fairly well -pretty steady	-hesitation -move head with page, not just eyes -not word by word -hand guiding reading -finger helping find spot	-stopping and starting -struggling -trying very hard
affect			
			-feels has to do this -loses interest
judgment			

APPENDIX B:

Investigator's record of kinesic nonverbal behavior

Record of common occurrences of kinesic nonverbal behavior for reader 509 (high ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	h	f
11:22		-hand ruffling pages					
23					H		
24							
25			-body back with word	-read and change page			
26							
27						H	
28		-hand ruffling pages					
29							
30							
31							
32							
33			-head back with punctuation				
34							
35							
36							
37							
38							
39							
40							
41							
42							
43					H		
44							
45							
46							
47							
48							
49							
50			-head back with punctuation				
51							
52							
53							
54							
55							
56	-\ left brow down						
57							
58							
59			-smile, head back with word				
12:00							
01							
02	-\ left brow down						
03							
04			-head and shoulders back with word				
05		-hand ruffling pages			H		

reader 509 continued

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking		
					m	h	f
06							
07							
08							
09							
10							
11					H		
12							
13							
14	-\ left						
15	brow down						
16	-V both						
17	brows						
18	down						
19							
20							
21		-hand					
22		ruffling					
23		pages					
24							
25		-hand					
26		ruffling	-shoulders				
27		pages	and head				
28		-hand	back with		H		
29	-V both	ruffling	word				
30	brows	pages					
31	down		-shoulders				
32			and head			H	
33			forward				
34			with word				
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							

Reading speed - fast

Record of common occurrences of kinesic nonverbal behavior
for reader 102 (average ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	 h	 f
4:26		-finger			H	H	
27		up, down					
28		-body up					
29							
30							
31					H	H	
32	-V both						
33	brows						
34	down	-hand		-reads,			
35		ruffling		looks up			
36		pages					
37							
38							
39							
40							
41					H		
42		-hand					
43		ruffling					
44		pages			H		
45		-rubs eye					
46		-hand					
47		ruffling					
48		pages					
49		-scratch				H	
50	-V both	head, pull			H		
51	brows	hair			H		
52	down						
53					H		
54						H	
55		-hand					
56		ruffling					
57		pages					
58		-yawn,			H		
59	-V both	shoulder					
5:00	brows	lift				H	
01	down,	-shoulder					
02	fast	out and					
03		back					
04		│				H	
05		│					
06		│					
07		│					
08		│					
09	-Λ brows	│				H	
10	squinched	│					
11	up	┴			H		
12					H		

reader 102 continued

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking		
					m	h	f
13							
14		-hand ruffling pages			H		
15							
16						H	
17							
18							
19							
20		-hand holding page up					
21			-brow lift after word				
22							
23						H	
24							
25							
26		-hand to hair					-creeping toward print
27							
28							
29							
30							
31		-hand holding page up				H	
32							
33							
34							
35							
36							
37		-hand to mouth, eye					
38							
39							
40					H		
41							
42						H	
43		-body shift to right					
44							
45		-hand ruffling pages			H		
46							
47							
48					H	H	
49	-✓both brows down	-shoulder shift to right					
50							
51							
52		-body shift to right			H		

Reading speed - slow

Record of common occurrences of kinesic nonverbal behavior
for reader 403 (average ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking		
					m	h	f
9:39		-hand ruffling pages					
40							
41							
42							
43							
44							
45							
46					H		
47							
48							
49		-hand ruffling pages					
50							
51					H		
52							
53							
54			-shoulder dip with word				
55							
56							
57							
58							
59					H		
10:00							
01							
02						H	
03			-sniff with word				
04							
05							
06			-sniff with word				
07							
08							
09							
10					H	H	
11						regress	
12							
13							
14							
15							
16							
17							
18							
19							
20							
21						regress	
22					H	H	
23							
24							
25							

reader 403 continued

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m h f
26					H regress
27					
28					
29					
30					
31					
32			-reads and		
33			turns page		
34					
35					H
36		-hand			
37		ruffling			
38		pages			
39		-hand			
40		ruffling			
41		pages			
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					H
54					
55					
56					
57					
58					
59					H
11:00					
01					
02					
03					
04					
05					
06					H

Reading speed - slow

Record of common occurrences of kinesic nonverbal behavior
for reader 606 (low ability)

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	Tracking h	Tracking f
13:09							
10							continuous
11							
12							
13		-fingers moving			H	H	
14							
15							
16							
17							
18							
19						H	
20							
21							
22						H	
23		-fiddling with bookmark					
24							
25							
26					H		
27							
28					H		
29							
30						H	
31					H		
32							
33							
34							
35		-hand ruffling pages					
36							
37							
38							
39					H		
40							
41						H	
42					H		
43							
44							
45							
46							
47							
48							
49						H	
50							
51							
52							
53							
54							

reader 606 continued

Time	Distress	Adaptors	Illustrators	Simultaneous	Tracking m	 h	 f
55							
56					H		
57							
58							
59							
14:00				-read, turn page		H	
01							
02							
03							
04						H	
05							
06							
07					H		
08							
09							
10		-finger rubbing page					
11					H	H	continuous
12							
13							
14							
15							
16							
17					H		
18							
19							
20							
21							
22					H	H	
23							
24						H	continuous
25							
26							
27							
28							
29							
30							
31		-thumb rubbing page					

Reading speed - slow